

# reledmac

## Typeset scholarly editions with L<sup>A</sup>T<sub>E</sub>X<sup>\*</sup>

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based on the original ledmac by

Peter Wilson

Herries Press

which was based on the original edmac, tabmac and edstanza by

John Lavagnino, Dominik Wujastyk, Herbert Breger and Wayne Sullivan.

### Abstract

The **reledmac** provides many tools in order to typeset scholarly editions. It is based on the **eledmac** package, which was based on the **ledmac** package, which was based on the **edmac** T<sub>E</sub>X package.

It can be used in combination with **reledpar** in order to typeset two texts in parallel, like an original text and its translation in a modern language.

**reledmac** provides many tools and options. Normally, they are all documented in this file. Also provided is a help folder, “examples”. The folder contains additional examples (although not for every possible case). Examples starting with “1-” are for basic uses, those starting with “2-” are for advanced uses.

To report bugs or request a new feature, please go to ledmac GitHub page and click on “New Issue”: <https://github.com/maieul/ledmac/issues/>. You must create an account on github.com to access my page (maieul/ledmac). GitHub accounts are free for open-source users. You can post messages in English or in French (preferred).

You can subscribe to the **reledmac** mail list at:  
<http://geekographie.maieul.net/146>

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## 1 Introduction

### 1.1 Aim of the package

The `reledmac` package, together with  $\text{\LaTeX}$ , provides several important facilities for formatting critical editions of texts in a traditional manner. Major features include:

- automatic stepped line numbering, by page, section or paragraph;
- sub-lineation within the main series of line numbers;
- variant readings automatically keyed to line numbers;
- caters to both prose and verse;
- multiple series of footnotes and endnotes;
- block or columnar formatting of the footnotes;
- simple tabular material may be line numbered;
- indexing keyed to page and line numbers.

`reledmac` allows the scholar engaged in preparing a critical edition to focus attention wholly on the task of creating the critical text and evaluating the variant readings, text-critical notes and testimonia.  $\text{\LaTeX}$  and `Eledmac` will take care of the formatting and visual correlation of all the disparate types of information.

Apart from `reledmac` there are other  $\text{\LaTeX}$  packages for typesetting critical editions. However, the aim of `reledmac` is to provide an “all in one” and flexible tool in the field of critical editions.

Any suggestions for new features are welcome.

This manual contains a general description of how to use `reledmac` followed by the complete source code and its extensive documentation (in sections I and following, enumerated with Roman numerals). It ends with a list of actions to do when migrating from one version to other, a change history and an index to the source code.

You do not need to read the source code for this package in order to use it; we provide this code primarily for reference, and many of our comments on it repeat material that is also found in earlier sections. But no documentation, however thorough, can cover every question that comes up and many can be answered quickly by consulting the code. On a first reading, we suggest that you read only the general documentation in sections 2, unless you are particularly interested in the innards of `reledmac`.

## 1.2 History

### 1.2.1 edmac

The original version of edmac was TEXTED.TEX, written by John Lavagnino in late 1987 and early 1988 for formatting critical editions of English plays.

John passed these macros on to Dominik Wujastyk who, in September–October 1988, added the footnote paragraphing mechanism, margin swapping and other changes to suit his own purposes, making the style more like that traditionally used for classical texts in Latin and Greek (e.g., the Oxford Classical Texts series). He also wrote some extra documentation and sent the files out to several people. This version of the macros was the first to be called edmac.

The present version was developed in the summer of 1990, with the intent of adding necessary features, streamlining and documenting the code, and further generalizing it to make it easily adaptable to the needs of editors in different disciplines. John did most of the general reworking and documentation, with the financial assistance of the Division of the Humanities and Social Sciences, California Institute of Technology. Dominik adapted the code to the conventions of Frank Mittelbach’s doc option, and added some documentation, multiple-column footnotes, cross-references, and crop marks.<sup>1</sup> A description by John and Dominik of this version of edmac was published as ‘An overview of edmac: a PLAIN T<sub>E</sub>X format for critical editions’, *TUGboat* 11 (1990), pp. 623–643.

From 1991 through 1994, the macros continued to evolve, and were tested at a number of sites. We are very grateful to all the members of the (now defunct) edmac@mailbase.ac.uk discussion group who helped us with smoothing out the bugs and infelicities in the macros. Ron Whitney and our anonymous reviewer at the TUG were both of great help in ironing out last-minute wrinkles, while Ron made some important suggestions which may help to make future versions of edmac even more efficient. Wayne Sullivan, in particular, provided several important fixes and contributions, including adapting the Mittelbach/Schöpf ‘New Font Selection Scheme’ for use with PLAIN T<sub>E</sub>X and edmac. Another project Wayne has worked on is a DVI post-processor which works with an edmac that has been slightly modified to output \specials. This combination enables you to recover to some extent the text of each line as ASCII code, facilitating the creation of concordances, an *index verborum*, etc.

As of 1994, we were pleased to be able to say that edmac was being used for the real-life book production of several interesting editions, such as the Latin texts of Euclid’s *Elements*,<sup>2</sup> an edition of the letters of Nicolaus Copernicus,<sup>3</sup> Simon Bredon’s *Arithmetica*,<sup>4</sup> a Latin translation by Plato of Tivoli of an Arabic astrolabe text,<sup>5</sup> a Latin translation of part II of the Arabic *Algebra* by Abū Kāmil Shujā’ b. Aslam,<sup>6</sup> the Latin *Rithmachia* of Werinher

<sup>1</sup>This version of the macros was used to format the Sanskrit text in volume I of *Metarules of Pāṇinian Grammar* by Dominik Wujastyk (Groningen: Forsten, 1993).

<sup>2</sup>Gerhard Brey used edmac in the production of Hubert L. L. Busard and Menso Folkerts, *Robert of Chester’s (?) Redaction of Euclid’s Elements, the so-called Adelard II Version*, 2 vols., (Basel, Boston, Berlin: Birkhäuser, 1992).

<sup>3</sup>Being prepared at the German Copernicus Research Institute, Munich.

<sup>4</sup>Being prepared by Menso Folkerts *et al.*, at the Institut für Geschichte der Naturwissenschaften in Munich.

<sup>5</sup>Richard Lorch, Gerhard Brey *et al.*, at the same Institute.

<sup>6</sup>Richard Lorch, ‘Abū Kāmil on the Pentagon and Decagon’ in *Vestigia Mathematica*, ed. M. Folkerts and J. P. Hogendijk (Amsterdam, Atlanta: Rodopi, 1993).

von Tegernsee,<sup>7</sup> a middle-Dutch romance epic on the Crusades,<sup>8</sup> a seventeenth-century Hungarian politico-philosophical tract,<sup>9</sup> an anonymous Latin compilation from Hungary entitled *Sermones Compilati in Studio Generali Quinqueecclesiensi in Regno Ungarie*,<sup>10</sup> the collected letters and papers of Leibniz,<sup>11</sup> Theodosius's *Spherics*, the German *Algorismus* of Sacrobosco, the Sanskrit text of the *Kāśikāvṛtti* of Vāmana and Jayāditya,<sup>12</sup> and the English texts of Thomas Middleton's collected works.

### 1.2.2 ledmac

Version 1.0 of `tabmac` was released by Herbert Breger in October 1996. This added the capability for typesetting tabular material.

Version 0.01 of `edstanza` was released by Wayne Sullivan in June 1992, to help a colleague with typesetting Irish verse.

In March 2003 Peter Wilson started an attempt to port `edmac` from TeX to LaTeX. The starting point was `edmac` version 3.16 as documented on 19 July 1994 (available from CTAN). In August 2003 the `tabmac` functions were added; the starting point for these being version 1.0 of October 1996. The `edstanza` (v0.01) functions were added in February 2004. Sidenotes and regular footnotes in numbered text were added in April 2004. This port was called `ledmac` (L<sup>A</sup>T<sub>E</sub>X `edmac`).

Since July 2011, `ledmac` is maintained by Maïeul Rouquette. It is increasingly powerful and flexible, but it also has become increasingly divergent from the original TeX macro.

### 1.2.3 eledmac

Important changes were put in version 1.0, to make `ledmac` more easily extensible (see 6 p. 29). These changes can trigger small problems with the old customization. That is why a new name was selected: `eledmac` (extended `ledmac`).

To migrate from `ledmac` to `eledmac`, please read Appendix A.2 p. 301.

### 1.2.4 reledmac

`eledmac` has facilitated the creation of customized critical editions. However, the changes made to allow such customization were made in a non-systematic way. Many deprecated commands were kept and many technical ‘debts’ were accumulated, hindering the future evolution of the package.

For these reasons, Maïeul Rouquette decided on a spring cleaning of the code. As some commands name were changed, the resulting compatibility was broken (a little).

<sup>7</sup>Menso Folkerts, ‘Die *Rithmachia* des Werinher von Tegernsee’, *ibid.*

<sup>8</sup>Geert H. M. Claassens, *De Middelnederlandse Kruisvaartromans*, (Amsterdam: Schipphower en Brinkman, 1993).

<sup>9</sup>Emil Hargittay, *Csáky István: Politica philosophiai Okoskodás-szerint való rendes életnek példája (1664–1674)* (Budapest: Argumentum Kiadó, 1992).

<sup>10</sup>Being produced, as was the previous book, by Gyula Mayer in Budapest.

<sup>11</sup>Leibniz, *Sämtliche Schriften und Briefe*, series I, III, VII, being edited by Dr. H. Breger, Dr. N. Gädeke and others at the Leibniz-Archiv, Niedersächsische Landesbibliothek, Hannover. (see <http://www.nlb-hannover.de/Leibniz>)

<sup>12</sup>Being prepared at Poona and Lausanne Universities.

A new name was selected: `reledmac` (extended renewed `eledmac`). To migrate from `eledmac` to `reledmac`, please read Appendix A.9 p. 304.

### 1.3 List of works edited with (r)(e)ledmac

A collaborative list of works edited with (r)(e)ledmac is available at [https://www.zotero.org/groups/critical\\_editions\\_typeset\\_with\\_edmac\\_ledmac\\_and\\_eledmac/items](https://www.zotero.org/groups/critical_editions_typeset_with_edmac_ledmac_and_eledmac/items). Please add your own edition made with (r)(e)ledmac.

## 2 How the package works

The `reledmac` package is a three-pass package like  $\LaTeX$  itself. Although your textual apparatus and line numbers will be printed on the first run, it takes two more passes through  $\LaTeX$  to be sure that everything is correctly placed. If you make any subsequent changes altering the number of lines or notes, the input file may similarly require three passes to get everything to the right place. `reledmac` will tell you that you need to make more runs when it detects changes, but it does not expend the labor to check this thoroughly. If you have problems with a line or two misnumbered at the top of a page, try running  $\LaTeX$  once or twice more.

A file may mix *numbered* and *unnumbered* text.

Numbered text is printed with marginal line numbers and can include footnotes and endnotes that are referenced to those line numbers: this is how you will want to print the text that you are editing.

Unnumbered text is not printed with line numbers, and you can't use `reledmac`'s note commands with it: this is appropriate for introductions and other material added by the editor around the edited text.

## 3 Options

The package can be loaded with a number of global options which are listed here. There are two types of options: 1) options which provide specific features, and, 2) options which optimize the package's performance. It is advisable for you to read the relevant parts of the handbook, before reading about the first type of option (specific features), but you can look at the second type (package optimization) in your first reading of the manual.

### 3.1 Specific features

**`draft`** underlines lemmas in the main text.

**`eledmac-compact`** help to migrate from `eledmac` to `reledmac` (see Appendix A.9.5 p. 305).

**`nopbinverse`** prevents page breaks inside verses.

**noquotation** by default, the quotation environment is redefined inside numbered text. You can disable this redefinition with `noquotation` (see 15 p. 57).

**parapparatus** by default, the apparatus cannot contain paragraph breaks; this option enables paragraphing inside the apparatus.

**xindy** and `xindy+hyperref` are for selecting `xindy` as the index processor (12.4 p. 51).

**widthliketwocolumns** set the width of the text printed in a single column to be the same as the width of the text printed in two parallel columns with `reledpar`. This is useful when alternating between normal and parallel typesetting.

### 3.2 Optimizing package performance

**nocritical** disables tools for critical footnotes (`\Afootnote`, `\Bfootnote` etc.). If you do not need critical footnotes, this option lets `eledmac` run faster. It will also preserve room for other packages.

**noeledsec** disables tools for `\eledsection` and related commands (14.2 p. 56).

**noend** disables tools for endnotes (`\Aendnote`, `\Bendnote` etc.). If you do not need endnotes, this option lets `eledmac` run faster. It will also preserve room for other packages.

**nofamiliar** disables tools for familiar footnotes (`\footnoteA`, `\footnoteB` etc.). If you do not need familiar footnotes, this option lets `eledmac` run faster. It will also preserve room for other packages.

**noledgroup** `reledmac` allows use of a series of critical notes and a new series of normal notes inside `minipage` and `ledgroup` environments (see 9 p. 44). However, such features use up computer memory, at the expense of other processing needs. So if you do not need this feature, use `noledgroup` option. This should make `reledmac` faster.

**series** `reledmac` defines five levels of notes: A, B, C, D, E. Using all these levels consumes memory space and processing speed. This is why, if your work does not require the entire A–E series, you can narrow down the available number of series. For example, if you only need A and B series, call the package with `series={A,B}` option.

## 4 Text lines and paragraphs numbering

### 4.1 Text lines numbering

`\beginnumbering` Each section of numbered text must be preceded by `\beginnumbering` and followed by `\endnumbering`, as in the following example.

```

\beginnumbering
Text
\endnumbering

```

The `\beginnumbering` macro resets the line number to zero, reads an auxiliary file called `\jobname.nn` (where `\jobname` is the name of the main input file for this job, and `nn` is 1 for the first numbered section, 2 for the second section, and so on), and then creates a new version of this auxiliary file to collect information during this run. The first instance of `\beginnumbering` also opens a file called `\jobname.<series>end` to receive the text of the endnotes. `\endnumbering` closes the `\jobname.nn` file.

If the line numbering of a text is to be continuous from start to end, then the whole text will be typed between one pair of `\beginnumbering` and `\endnumbering` commands. But your text will most often contain chapter or other divisions marking sections that should be independently numbered, and these will be appropriate places to begin new numbered sections.

`reledmac` has to read and store in memory a certain amount of information about the entire section when it encounters a `\beginnumbering` command, so it speeds up the processing and reduces memory use when a text is divided into a larger number of sections (at the expense of multiplying the number of external files that are generated).

## 4.2 Paragraphs

### 4.2.1 Basics

`\pstart` Within a numbered section, each paragraph of numbered text must be marked using the `\pstart` and `\pend` commands like this:

```

\pstart
Paragraph of text.
\pend

```

Text that appears within a numbered section but is not marked with `\pstart` and `\pend` will not be numbered.

The following example shows the proper section and paragraph markup and the kind of output that would typically be generated:

```

\beginnumbering
\pstart
This is a sample paragraph, with
lines numbered automatically.
\pend

\pstart
This paragraph too has its
lines automatically numbered.
\pend

The lines of this paragraph are
not numbered.

\pstart
And here the numbering begins
again.
\pend
\endnumbering

```

#### 4.2.2 Automatically producing \pstart ... \pend

`\autopar` You can use `\autopar` to avoid the nuisance of this paragraph markup and still have every paragraph automatically numbered. The scope of the `\autopar` command needs to be limited by keeping it within a group, as follows:

```

\begingroup
  \beginnumbering
  \autopar

  A paragraph of numbered text.

  Another paragraph of numbered
  text.

  \endnumbering
\endgroup

```

`\autopar` fails, however, on paragraphs that start with a `{` or with any other command that starts a new group before it generates any text. Such paragraphs need to be started explicitly, before the new group is opened, using `\indent`, `\noindent`, or `\leavevmode`, or using `\pstart` itself.<sup>13</sup>

#### 4.2.3 Content before specific \pstart and after specific \pend

Both `\pstart` and `\pend` can take a optional argument in brackets. Its content will be printed before the beginning of `\pstart` / after the end of `\pend` instead of the argument of `\AtEveryPstart` / `\AtEveryPend`. If you need to start a `\pstart` with

<sup>13</sup>For a detailed study of the reasons for this restriction, see Barbara Beeton, 'Initiation rites', *TUGboat* 12 (1991), pp. 257–258.



brackets, or to add brackets after a `\pend`, just add a `\relax` between `\pstart ... \pend` and the brackets.

This feature is also useful when typesetting verses (see 8 p. 41) or `reledpar` (see 17.7 p. 60).

A `\noindent` is automatically added before this argument.

#### 4.2.4 Content before every `\pstart` and after every `\pend`

`\AtEveryPstart`    You can use both `\AtEveryPstart` and `\AtEveryPend`. Their arguments will be  
`\AtEveryPend`    printed before every `\pstart` begins / after every `\pend` ends.

#### 4.2.5 Numbering paragraphs (`\pstart`)

`\numberpstarttrue`    It is possible to insert a number at every `\pstart` command; you must use the  
`\numberpstartfalse`    `\numberpstarttrue` command to have it. You can stop the numbering with `\numberpstartfalse`.  
`\thepstart`    You can redefine the command `\thepstart` to change style. You can change the value  
of the `pstart` number by using *after* `\beginnumbering`:

```
\setcounter{numberpstart}{value}
```

On each `\beginnumbering` the numbering restarts.

`\sidepstartnumtrue`    With the `\sidepstartnumtrue` command, the number of `\pstart` will be printed  
inside. In this case, the line number will be not printed.

`\labelpstarttrue`    With the `\labelpstarttrue` command, a `\label` added just after a `\pstart` will  
refer to the number of this `pstart`.

#### 4.2.6 Languages written in Right to Left

If you use languages written right to left with  $\text{Lua}\text{\LaTeX}$  or  $\text{X}\text{\LaTeX}$ , you must switch text direction *before* the `\pstart` command.

#### 4.2.7 Memory limits

**This paragraph is kept for history, but the problems described below should not appear with the most recent version of  $\text{\LaTeX}$ .**

`\pausenumbering`    `reledmac` stores a lot of information about line numbers and footnotes in memory  
`\resumenumbering`    as it goes through a numbered section. But at the end of such a section, it empties its  
memory out, so to speak. If your text has a very long numbered section it is possible  
that your  $\text{\LaTeX}$  may reach its memory limit. There are two solutions to this.

The first solution is to get a larger  $\text{\LaTeX}$  with increased memory.

The second solution is to split your long section into several smaller ones. The trouble with this is that your line numbering will start again at zero with each new section. To avoid this problem, we provide `\pausenumbering` and `\resumenumbering` which are just like `\endnumbering ... \beginnumbering`, except that they arrange for your line numbering to continue across the break. Use `\pausenumbering` only between numbered paragraphs:

```

\beginnumbering
\pstart
Paragraph of text.
\pend
\pausenumbering

\resumenumbering
\pstart
Another paragraph.
\pend
\endnumbering

```

We have defined these commands as two macros, in case you find it necessary to insert text between numbered sections without disturbing the line numbering. But if you are really just using these macros to save memory, you might as well type,

```
\newcommand{\memorybreak}{\pausenumbering\resumenumbering}
```

and type `\memorybreak` between the relevant `\pend` and `\pstart`.

### 4.3 Lineation commands

#### 4.3.1 Disabling lineation

`\numberlinefalse` Line numbering can be disabled with `\numberlinefalse`. It can be enabled again with `\numberlinetrue`.

#### 4.3.2 Setting lineation start and step

`\firstlinenum` By default, `reledmac` numbers every 5th line. There are two counters that control this behaviour: `firstlinenum` and `linenumincrement`. They can be changed using `\firstlinenum{<num>}` and `\linenumincrement{<num>}`. `\firstlinenum` specifies the first line that will have a printed number, and `\linenumincrement` is the difference between successive numbered lines. For example, to start printing numbers at the first line and to have every other line numbered:

```
\firstlinenum{1} \linenumincrement{2}
```

`\firstsublinenum` There are similar commands, `\firstsublinenum{<num>}` and `\sublinenumincrement{<num>}` for controlling sub-line numbering.

`\sublinenumincrement` You can define `\linenumberlist` to specify a non-uniform distribution of printed line numbers. For example:

`\linenumberlist`

```
\def\linenumberlist{1,2,3,5,7,11,13,17,19,23,29}
```

to have numbers printed on prime-numbered lines only. There must be no spaces within the definition which consists of comma-separated integer numbers. The numbers can be in any order but it is easier to read if you put them in numerical order. Either omitting the definition of `\linenumberlist` or following the empty definition

```
\def\linenumberlist{}
```

the standard numbering sequence is applied. The standard sequence is that specified by

the combination of the `firstlinenum`, `linenumincrement`, `firstsublinenum` and `linenumincrement` counter values.

### 4.3.3 Setting lineation reset

`\lineation` Lines can be numbered either by page, by `pstart` or by section; you specify this using the `\lineation{⟨arg⟩}` macro, where `⟨arg⟩` is either `page`, `pstart` or `section`.

You may only use this command at places where numbering is not in effect; you can't change the lineation system within a section. You can change it between sections: they don't all have to use the same lineation system. The package's standard setting is `\lineation{section}`. If the lineation is by `pstart`, the `pstart` number will be printed before the line number in the notes.

### 4.3.4 Setting line number margin

`\linenummargin` The command `\linenummargin{⟨location⟩}` specifies the margin where the line (or `pstart`) numbers will be printed. The permissible values for `⟨location⟩` are `left`, `right`, `inner`, or `outer`: for example, `\linenummargin{inner}`. The package's default setting is

`\linenummargin{left}`

to typeset the numbers in the left hand margin. You can change this whenever you're not in the middle of making a paragraph.

More precisely, the value of `\linenummargin` used is the value in effect at the `\pend` of a numbered paragraph. Apart from an initial setting for `\linenummargin`, only change `\linenummargin` after a `\pend`, whereupon it will apply to all following numbered paragraphs, until changed again (changing it between a `\pstart` and `\pend` pair will apply the change to all of the current paragraph).

### 4.3.5 Other settings

`\leftlinenum` When a marginal line number is to be printed, there are many ways to display it. You can  
`\rightlinenum` redefine `\leftlinenum` and `\rightlinenum` to change the way marginal line numbers  
`\linenumsep` are printed in the left and right margins respectively; the initial versions print the number in font `\numlabfont` (described below) at a distance `\linenumsep` (initially set to one pica) from the text.

## 4.4 Changing the line numbers

Normally, line numbering starts at 1 for the first line of a section and increments by one for each line thereafter. There are various common modifications of this system and the commands described here allow you to put such modifications into effect.

### 4.4.1 Sublineation

`\startsub` You insert the `\startsub` and `\endsub` commands in your text to turn sub-lineation  
`\endsub` on and off. For example, stage directions in plays are often numbered with sub-line

numbers: as line 10.1, 10.2, 10.3, rather than as 11, 12, and 13. Titles and headings are sometimes numbered with sub-line numbers as well.

When sub-lineation is in effect, the line number counter is frozen and the sub-line counter advances instead. If one of these commands appears in the middle of a line, it doesn't take effect until the next line; in other words, a line is counted as a line or sub-line depending on what it started out as, even if it changes in the middle.

You can change the separator between line number and subline number or using `\Xsublinesep` without any option argument (6.2.8 p. 33 or using `\Xsublinesepside`. But in the second case, it will change the separator only for line number in side, not for the footnotes.

#### 4.4.2 Locking lineation

`\startlock` The `\startlock` command, used in running text, locks the line number at its current value, until you insert `\endlock`. It can tell for itself whether you are in a patch of line or sub-line numbering. One use for line-number locking is in printing poetry: there the line numbers should be those of verse lines rather than of printed lines, even when a verse line requires several printed lines. But in this case you may use the `\stanza` mechanism, see 8 p. 41.

`\lockdisp` When line-number locking is used, several printed lines may have the same line number, and you have to specify whether you want the number attached to the first printed line or the last, or whether you just want the number printed by them all, assuming that the settings of the previous parameters requires the display of a line number for this line. You specify your preference using `\lockdisp{<arg>}`; its argument is a word, either `first`, `last`, or `all`. The package initially sets this as `\lockdisp{first}`.

#### 4.4.3 Setting and changing line number

`\setline` In some cases you may want to modify the line numbers that are automatically calculated: if you are printing only fragments of a work but want to print line numbers appropriate to a complete version, for example. The `\setline{<num>}` and `\advanceline{<num>}` commands may be used to change the current line's number (or the sub-line number, if sub-lineation is currently on). They change both the marginal line numbers and the line numbers passed to the notes. `\setline` takes one argument, the value to which you want the line number set; it must be 0 or greater. `\advanceline` takes one argument, an amount that should be added to the current line number; it may be positive or negative.

`\setlinenum` The `\setline` and `\advanceline` macros should only be used within a `\pstart... \pend` group. The `\setlinenum{<num>}` command can be used outside such a group, for example between a `\pend` and a `\pstart`. It sets the line number to `<num>`. It has no effect if used within a `\pstart... \pend` group.

#### 4.4.4 Line number style

`\linenumberstyle` Line numbers are normally printed as arabic numbers. You can use `\linenumberstyle{<style>}`  
`\sublinenumberstyle` to change the numbering style. `<style>` must be one of:

**Alph** Uppercase letters (A ... Z).

**alph** Lowercase letters (a ... z).

**arabic** Arabic numerals (1, 2, ...)

**Roman** Uppercase Roman numerals (I, II, ...)

**roman** Lowercase Roman numerals (i, ii, ...)

Note that with the **Alph** or **alph** styles, ‘numbers’ must be between 1 and 26 inclusive.

Similarly `\sublinenumberstyle{<style>}` can be used to change the numbering style of sub-line numbers, which is normally arabic numerals.

#### 4.4.5 Skipping and hiding number

`\skipnumbering` When inserted into a numbered line the macro `\skipnumbering` causes the numbering of that particular line to be skipped; that is, the line number is unchanged and no line number will be printed. Note that if you use it in `\stanza`, you must call it at the beginning of the verse.

`\hidenumbering` When inserted into a numbered line, the macro `\hidenumbering` causes the number for that particular line to be hidden; namely, no line number will print. Note that if you use it in `\stanza`, you must call it at the beginning of the verse.

#### 4.4.6 Execute code at each line

`\dolinehook` `\doinsidelinehook` `reledmac` provides an advanced feature for users. The argument passed to `\dolinehook{<arg>}` will be executed before slicing a new line in the paragraph. The argument passed to `\doinsidelinehook{<arg>}` will be executed before printing a new line. In many cases, the latter is more useful than the former. The file `examples/2-line_numbers_in_header.tex` provides an example for printing the first and last line numbers of a page in the header.

## 5 Apparatus commands

### 5.1 Terminology

We call “critical notes” notes which refer to both a lemma, that is a part of text and a line number. Critical notes are subdivided in critical footnotes and critical endnotes.

We call “familiar notes” notes which refer to a footnote mark in the main text.

`reledmac` manages many series of notes of each category. A series of notes is identified by an uppercase letter. When the series letter is at the *beginning* of a command name, it refers to a critical footnote. When the series letter is at the *end* of a command name, it refers to a familiar footnote.

So :

- `\Afootnote` is a critical footnote of the series A.
- `\Bendnote` is a critical endnote of the series B.
- `\footnoteC` is a familiar footnote of the series C.

## 5.2 Critical notes

### 5.2.1 The lemma

`\edtext` Within numbered paragraphs, all footnotes and endnotes are generated by the `\edtext` macro:

```
\edtext{⟨lemma⟩}{⟨commands⟩}
```

The `⟨lemma⟩` argument is the lemma in the main text: `\edtext` both prints this as part of the text, and makes it available to the `⟨commands⟩` you specify to generate notes.

For example:

I am happy :		1	I am happy : I saw my friend Smith on
I saw my friend \edtext{Smith}{		2	Tuesday.
\Afootnote{Jones C, D.}}			
on Tuesday .			
			1 Smith ] Jones C, D.

The lemma `Smith` is printed as part of this sentence in the text, and is also made available to the footnote that specifies a variant, `Jones C, D`. The footnote macro is supplied with the line number at which the lemma appears in the main text.

The `⟨lemma⟩` may contain further `\edtext` commands. Nesting makes it possible to print an explanatory note on a long passage together with notes on variants for individual words within the passage. For example:

I am happy : \edtext{I saw my friend	1	I am happy : I saw my friend Smith on
\edtext{Smith}{\Afootnote{Jones	2	Tuesday.
C, D.}} on Tuesday.}{		
\Bfootnote{The date was		1 Smith ] Jones C, D.
July 16, 1954.}		
}		1-2 I saw my friend Smith on Tuesday.] The
		date was July 16, 1954.

However, `\edtext` cannot handle overlapping but unnested notes—for example, one note covering lines 10–15, and another covering 12–18; an `\edtext` that starts in the `⟨lemma⟩` argument of another `\edtext` must end there, too. (The `\lemma` and `\linenum` commands may be used to generate overlapping notes if necessary.)

### 5.2.2 Footnotes

The second argument of the `\edtext` macro, `⟨commands⟩`, may contain a series of subsidiary commands that generate various kinds of notes.

`\Afootnote` Five separate series of the footnotes are maintained; each macro takes one argument like `\Afootnote{⟨text⟩}`. When all of the six are used, the A notes appear in a layer just below the main text, followed by the rest in turn, down to the E notes at the bottom.

`\Bfootnote` These are the main macros that you will use to construct the critical apparatus of your text.

`\Cfootnote`

`\Dfootnote`

`\Efootnote`

If you need more series of critical notes, please look at 5.5.1 p. 28.

An optional argument can be added before the text of the footnote. Its value is a comma-separated list of options. The available options are:

- `fulllines` to disable `\Xtwolines` and `\Xmorethantwolines` features for this note (cf. 6.2.4 p. 31).

- `nonum` to disable line numbering for this note.
- `nosep` to disable the lemma separator for this note.
- `linangesep=<c>` to change to `<c>` the separator between start line and end line for this particular note.

Example: `\Afootnote[nonum]{<text>}`.

### 5.2.3 Endnotes

`\Aendnote` The package also maintains five separate series of endnotes.

`\Bendnote` If you do not need the endnotes facility, you should use `noend` option when loading `reledmac`.

`\Cendnote` The mechanism is similar to the one for footnotes: each macro takes one or more optional arguments and one single argument, like:

`\Dendnote` `\Eendnote`

`\Aendnote[<option>]{<text>}`.

`<option>` can contain a comma-separated list of values. Allowed values are:

- `fulllines` to disable `\Xendtwolines` and `\Xendmorethantwolines` features for this particular note (cf. 6.2.4 p. 31).
- `nonum` to disable line number for this particular note.
- `nosep` to disable the lemma separator for this particular note.
- `linangesep=<c>` to change to `<c>` the separator between start line and end line for this particular note.

`\doendnotes` Normally, endnotes are not printed: you must use the `\doendnotes{<s>}`, where `<s>` is the letter of the series to be printed. Put this command where you want the corresponding set of endnotes printed. In this case, all the endnotes of the `<s>` series are printed, for all numbered sections.

`\doendnotesbysection` However, you may want to print the endnotes of one given series covering the first numbered section, then the endnotes of another given series covering the first numbered section, then the endnotes of the first given series covering the second numbered section, then the endnotes of the second given series covering the second numbered section, and so forth. In this case, use `\doendnotesbysection{<s>}`. For each value of `<s>`, the first call of the command will print the notes for the first series, the second call will print the notes for the second series etc. For example, do:

```
\section{Endnotes}
\subsection{First text}
\doendnotesbysection{A}
\doendnotesbysection{B}
\subsection{Second text}
\doendnotesbysection{A}
\doendnotesbysection{B}
```

Note that by default inside endnotes no separator is used between the lemma and the content. However you can use the `\Xendlemmaseparator` macro to define one (6.5.2 p. 35).

As endnotes may be printed at any point in the document they always start with the page number where they are called.

### 5.2.4 Paragraph in critical apparatus

By default, no paragraph can be made in the notes of critical apparatus. You can allow it by adding the options `parapparatus` when loading the package :

```
\usepackage[parapparatus]{eledmac}
```

Note that you *cannot* use paragraphs (e.g. blank lines or `\par`) inside of notes, when they are set to paragraph arrangement!

### 5.2.5 Change lemma and line number

`\lemma` If you want to change the lemma that gets passed to the notes, you can do this by using `\lemma{⟨alternative⟩}` within the second argument to `\edtext` and before the note commands. The most common use of this command is to abbreviate the lemma that's printed in the notes. For example:

```
I am happy :
\edtext{I saw my friend
\edtext{Smith}{\Afootnote{Jones
C, D.}} on Tuesday.}
{\lemma{I \dots\ Tuesday.}
\Bfootnote{The date was
July 16, 1954.}
}
```

1 I am happy : I saw my friend Smith on  
2 Tuesday.  


---

1 Smith ] Jones C, D.  


---

1-2 I ... Tuesday. ] The date was July 16, 1954.

`\linenum` You can use `\linenum{⟨arg⟩}` to change the line numbers passed to the notes. `⟨arg⟩` actually consist of seven parameters: the page, line, and sub-line number for the start of the lemma; the same three numbers for the end of the lemma; and the font specifier for the lemma. As the argument to `\linenum`, you specify those seven parameters in that order, separated by vertical bars (the `|` character). I.e.

```
\linenum{⟨start page⟩|⟨s. line⟩|⟨s. sub-l.⟩|⟨end p.⟩|⟨e. l.⟩|⟨e. sub-l.⟩|⟨font⟩|}
```

However, you can retain the value computed by `reledmac` for any number by simply omitting it; and you can omit a sequence of vertical bars at the end of the argument. For example, `\linenum{|||23}` changes only the ending page number of the current lemma.

This command does not change the marginal line numbers in any way; it just changes the numbers passed to the notes. Its use comes in situations that `\edtext` has trouble dealing with for whatever reason. If you need notes for overlapping passages that aren't nested, for instance, you can use `\lemma` and `\linenum` to generate such notes despite the limitations of `\edtext`. If the `⟨lemma⟩` argument to `\edtext` is extremely long, you may run out of memory; here again you can specify a note with an abbreviated



lemma using `\lemma` and `\linenum`. The numbers used in `\linenum` need not be entered manually; you can use the ‘x-’ symbolic cross-referencing commands below (10 p. 45) to compute them automatically.

Similarly, being able to manually change the lemma’s font specifier in the notes might be important if you were using multiple scripts or languages. The form of the font specifier is three separate codes separated by / characters, giving the family, series, and shape codes as defined within NFSS.

### 5.2.6 Changing the names of commands for critical apparatus

The commands for generating the apparatus have been given rather bland names, because editors in different fields have widely divergent notions of what sort of notes are required, where they should be printed, and what they should be called. But this does not mean you have to type `\Afootnote` when you would rather type something you find more meaningful, like `\variant`.

We recommend that you create a series of such aliases and use them instead of the names chosen here; all you have to do is put commands of this form at the start of your file:<sup>14</sup>

```
\newcommandx{\variant}[2][1,usedefault]{\Afootnote[#1]{#2}}
\newcommandx{\explanatory}[2][1,usedefault]{\Bfootnote[#1]{#2}}
\newcommand{\trivial}[1]{\Aendnote{#1}}
\newcommandx{\testimonia}[2][1,usedefault]{\Cfootnote[#1]{#2}}
```

## 5.3 Disambiguation of identical words in the apparatus

Sometimes, the same word occurs twice (or more) in the same line. `reledmac` provides tools to disambiguate references in the critical notes. The lemma will be followed by a reference number if a given word occurs more than once in the same line.

### 5.3.1 Basic use

`\sameword` To use this tool, you have to mark every occurrence of the potentially ambiguous term with the `\sameword` command:

```
Lupus \sameword{aut} canis \edtext{\sameword{aut}}{\Afootnote{et}} felix
```

In this example, `aut` will be followed, in the critical note, by the exponent 2 if it is printed in the same line as the first `aut`, but it will not if it is printed in a different line. The number is printed only after the second run.

<sup>14</sup>We use `\newcommand` and `\newcommandx` instead of classical `\let` command because the `edtabular` environments have to modify the notes definition, and we need to use the newest definition of notes. Read the handbook of `xargs` to know more about `\newcommandx`.

### 5.3.2 Notes about input encoding with UTF-8 processor

If you use UTF-8 processor, like  $\text{Xe}\text{L}\text{A}\text{T}\text{E}\text{X}$  or  $\text{Lua}\text{L}\text{A}\text{T}\text{E}\text{X}$ , there should not be any glitches. However, pay attention to how characters are encoded. Similar-looking characters may be represented differently in unicode numbering.

For instance, in Greek, “α” has two possible unicode numbers:

- GREEK SMALL LETTER ALPHA (U+03B1) + COMBINING GREEK YPOGEGRAMMENI (U+0345)
- GREEK SMALL LETTER ALPHA WITH YPOGEGRAMMENI (U+1FB3)

Which unicode number you use depends, many times, on your keyboard configuration (the computer-input system).

Inside `reledmac`, the `\sameword` command considers these two unicodes (code positions) as different characters. If you use only one unicode number consistently, the distinction will probably make no difference to how your text looks, but `\sameword` will process the text inaccurately, based on the unicode numbers. To prevent this, do the following:

- If you use  $\text{Xe}\text{L}\text{A}\text{T}\text{E}\text{X}$ , add this line in your preamble: `\XeTeXinputnormalization 1`.
- If you use  $\text{Lua}\text{L}\text{A}\text{T}\text{E}\text{X}$ , use the `uninormalize` package of Michal Hoftich<sup>15</sup> with the `buffer` option set to true.

With these tools,  $\text{Xe}\text{L}\text{A}\text{T}\text{E}\text{X}$  /  $\text{Lua}\text{L}\text{A}\text{T}\text{E}\text{X}$  will dynamicaly normalize unicode input when reading the file. Consequently, you will have no problems with the `\sameword` command.

### 5.3.3 Use with `\lemma` command

If you use the `\lemma` command, `reledmac` cannot know to which occurrence of `\sameword` in the first argument of `\edtext` a word marked with `\sameword` in `\lemma` should refer.

For example in the following example:

```
some thing
\edtext{\sameword{sw}
        and other \sameword{sw}
        and again \sameword{sw}
        it is all}%
{\lemma{\sameword{sw} \ldots all}\Afootnote{critical note}}.%
```

`reledmac` cannot know if the “sw” in `\lemma` refers to the word after “thing”, after “other”, or after “again”.

Consequently, you must tell `reledmac` to which instance of `\sameword` you are referring in the first argument of `\edtext`:

<sup>15</sup><https://github.com/michal-h21/uninormalize>.

- In the content of `\lemma`, use `\sameword` with no optional argument.
- In the first argument of `\edtext`, use `\sameword` with the optional argument `[⟨X⟩]`. `⟨X⟩` is the depth of the `\edtext` where the `\lemma` is used. So if the `\lemma` is called in a `\edtext` inside another `\edtext`, `⟨X⟩` is equal to 2. If the `\lemma` is called in a `\edtext` “of first level”, `⟨X⟩` is equal to 1. If the lemma is called in both 1 and 2 `\edtext` depth, `⟨X⟩` is 1,2. If that word is referenced in the lemma of every `\edtext` depth, `⟨X⟩` can also be set to `inlemma`.

Note that only words that are actually referenced in a `\lemma` need the optional argument. Therefore, the first `\sameword` in the example above should have “1” as its optional argument, to be referenced correctly in the lemma.

Note also that the `⟨X⟩` does not refer to the level where the `\sameword` occurs, but to the level of the `\lemma` that refers to that `\sameword`. For example:

```
\edtext{some \edtext{\sameword[1]{word}}{\Afootnote{om. M}}
    and other \sameword{word}
    and again a \sameword{word}
    it is all}%
}{\lemma{some \sameword{word} \ldots all}\Afootnote{critical note}}.%
```

Here the `\sameword` occurs in an `\edtext` of level 2, but since it is referenced by `\lemma` on level 1, it has “1” in the optional argument.

In the following example figure, each framed box represents an `\edtext` level. Each number is an occurrence of `\sameword`. After a framed box, the text in superscript represents the content of `\lemma` for that `\edtext` level. The text in subscript at the right of a number represents the content of the optional argument of `\sameword`.

The diagram consists of three nested rectangular boxes. The innermost box contains the text "1<sub>inlemma</sub>" followed by "2". The middle box contains "3<sub>2</sub>" followed by "4". The outermost box contains "5<sub>1</sub>". Above the middle box is the superscript "1...3", and above the outermost box is the superscript "1...5". Below the "5" in the outermost box is the subscript "1".

The `\sameword` number 3 is called in a `\lemma` related to an `\edtext` of level 2. It must be marked by “2”.

The `\sameword` number 5 is called in a `\lemma` related to `\edtext` of level 1. It must be marked by “1”.

The `\sameword` number is called in two `\lemmas`: one related to a `\edtext` of level 1, the other related to `\edtext` of level 2. It must be marked by “1,2”. However, as `\lemma` is called only in level 1 and 2, “1,2” could be replaced by “inlemma”.

The `\sameword` number “2” is in the first argument of a `\edtext` of level 3, but it has no `\lemma`-command, so there is no need to mark it.

#### 5.3.4 Customizing

`\showwordrank` You can redefine the `\showwordrank` macro to change the way the number is printed. The default value is

```
\newcommand{\showwordrank}[2]{%
    #1\textsuperscript{#2}%
}
```

## 5.4 Familiar notes

### 5.4.1 Basic use

`\footnoteA` As well as the standard L<sup>A</sup>T<sub>E</sub>X footnotes generated via `\footnote`, the package also provides five series of additional footnotes called `\footnoteA` through `\footnoteE`. These have the familiar marker in the text, and the marked text at the foot of the page can be formatted using any of the styles described for the critical footnotes. Note that the ‘regular’ footnotes have the series letter at the end of the macro name whereas the critical footnotes have the series letter at the start of the name.

### 5.4.2 Customizing mark

`\thefootnoteA` Each series uses a set of macros for styling the marks. The mark numbering scheme of series A is defined by the `\thefootnoteA` macro; the default is:  
`\bodyfootmarkA` `\renewcommand*{\thefootnoteA}{\arabic{footnoteA}}`  
`\footfootmarkA` The appearance of the mark in the text is controlled by `\bodyfootmarkA` which is defined as:  
`\newcommand*{\bodyfootmarkA}{%`  
`\hbox{\textsuperscript{\normalfont\@nameuse{@thefnmarkA}}}`  
 The command `\footfootmarkA` controls the appearance of the mark at the start of the footnote text. It is defined as:  
`\newcommand*{\footfootmarkA}{\textsuperscript{\@nameuse{@thefnmarkA}}}`  
 There are similar command triples for the other series.

### 5.4.3 Separator for multiple footnotes

The `footmisc` package [Fai03] by Robin Fairbairns has an option whereby sequential footnote marks in the text can be separated by commas<sup>3,4</sup> like so. As a convenience `reledmac` provides this automatically.

`\multfootsep` `\multfootsep` is used as the separator between footnote markers. Its default definition is:  
`\providecommand*{\multfootsep}{\textsuperscript{\normalfont,}}`  
 and can be changed if necessary.

## 5.5 Changing series

### 5.5.1 Create a new series

If you need more than five series of critical footnotes, you can create extra series, using `\newseries` command. For example, to create F and G series `\newseries{G,H}`.

### 5.5.2 Delete series

As the number of series which are defined increases, `reledmac` gets slower. If you do not need all of the six standard series (A–E), you can load the package with the `series` option. For example if you need only series A and B, use:

```
\usepackage[series={A,B}]{eledmac}
```

### 5.5.3 Series order

The default series order is the one called with the `series` option of the package, or, if this option is not used, A, B, C, D, E. Series order determines footnotes order.

```
seriesatbegin
seriesatend
```

However in some specific cases, you need to change the series order at some point inside the document. You can use `\seriesatbegin{<s>}` to pull up a given series `<s>` to the beginning, or `\seriesatend{<s>}` to push it down to the end.

## 5.6 Position of critical and familiar footnotes

```
\fnpos
\mpfnpos
```

There is a historical incoherence in `(r)(e)ledmac`. The familiar footnotes are before the critical footnotes in a normal page, but after in a minipage or in a ledgroup. However, it is possible to change the relative position of both types of footnotes. If you want to have familiar footnotes after critical footnotes in a normal page, use:

```
\fnpos{critical-familiar}
```

Or, if you want a minipage or ledgroup to have critical footnotes after familiar footnotes, use:

```
\mpfnpos{familiar-critical}
```

## 6 Critical apparatus appearance

Some commands can be used to change the display of the footnotes. All can have an optional argument `[<s>]`, which is the letter of the series — or a list of letters separated by comma — depending on which option is applied. If the optional argument is omitted or empty, the setting will apply to the entire series.

When a length (`<l>`) is used, it can be stretchable: `a plus b minus c`. The final length `m` is calculated by  $\TeX$  to have  $a - c \leq m \leq a + b$  units. If you use some relative unit<sup>16</sup>, it will be relative to the font size of the footnote, except for commands concerning the place kept by the notes, including blank spaces.

When a length, noted `<l>`, is used, it can be stretchable: `a plus b minus c`. The final length `m` is calculated by  $\TeX$  to have:  $a - c \leq m \leq a + b$ . If you use some relative unit<sup>17</sup>, it will be relative to font size of the footnote, except for commands concerning the place kept by the notes — including blank space.

There is also name convention:

- Names prefixed by `X` are for setting of critical footnotes.
- Names prefixed by `Xend` are for setting of critical endnotes.

<sup>16</sup>Like `em`, which is the width of an ‘m’ in a given font.

<sup>17</sup>Like `em` which is the width of an ‘m’ in a given font.

- Names suffixed by X are for setting of familiar footnotes.

## 6.1 Notes arrangement in a series

`\Xarrangement`  
`\arrangementX`

By default, all footnotes are formatted as a series of separate paragraphs in one column. Three other formats are also available for notes.

Use `\Xarrangement[⟨s⟩]{⟨a⟩}` to change the arrangement of the `⟨s⟩` series of critical footnotes and `\arrangementX[⟨s⟩]{⟨a⟩}` to change the arrangement of the `⟨s⟩` series of familiar footnotes.

The value of `⟨a⟩` can be one of the following

- `paragraph` formats all the footnotes of a series as a single paragraph. If you use this arrangement, you are strongly encouraged to read 17.5 p. 59.
- `twocol` formats them as separate paragraphs, but in two columns;
- `threecol`, in three columns.
- `normal`, restore normal arrangement.

You should set up the page layout parameters, and in particular the `\baselineskip` of the footnotes, before you call this macro because its action depends on these; too much or too little space will be allotted for the notes on the page if these macros use the wrong values.

Note that you *cannot* use paragraphs (e.g. blank lines or `\par`) or line breaks (`\break` or `\linebreak` or `\newline` etc.) inside of notes, when they are set to `paragraph` arrangement!<sup>18</sup>

The notes arrangement must be called after having defined the document geometry setting. If you must change geometry setting inside your document, do not forget to call note arrangement again.

`\hsize` has been set for the pages that use this series of notes; otherwise  $\TeX$  will try to put too many or too few of these notes on each page. If you need to change the `\hsize` within the document, call the arrangement macro again afterwards to take account of the new value.

## 6.2 Control line number printing

### 6.2.1 Print line number only at first time

`\Xnumberonlyfirstinline`

By default, the line number is printed in every note. If you want to print it only the first time for a given line number (i.e., one time for line 1, one time for line 2, etc.), you can use `\Xnumberonlyfirstinline[⟨s⟩]`.

Use `\Xnumberonlyfirstinline[⟨s⟩][false]` to disable this. `⟨s⟩` can be empty if you want to disable it for every series.

`\Xnumberonlyfirstintwolines`

Suppose you have a lemma on line 2 and a lemma between line 2 and line 3. With `\Xnumberonlyfirstinline`, the second lemma is considered to be on the same line as the first lemma. But if you use both `\Xnumberonlyfirstinline[⟨s⟩]`

<sup>18</sup>See XII.6.3 p. 152 for further information.

and `\Xnumberonlyfirstintwoline` $\langle s \rangle$ , a distinction is made. Use the command `\Xnumberonlyfirstintwoline` $\langle s \rangle$  `[false]` to disable this.  $\langle s \rangle$  can be empty if you want to disable it for every series.

`\Xsymlinenum` For setting a particular symbol in place of the line number, you can use `\Xsymlinenum` $\langle s \rangle$   $\{ \langle symbol \rangle \}$  in combination with `\Xnumberonlyfirstinline` $\langle s \rangle$ . From the second lemma of the same line, the symbol will be used instead of the line number. Note that any command called in  $\langle symbol \rangle$  must be robust. Use `\robustify` to robustify a non-robust command.

`\Xendnumberonlyfirstinline` For endnotes, `\Xendnumberonlyfirstinline`; `\Xendnumberonlyfirstintwoline` and `\Xendsymlinenum` are the equivalents of `\Xnumberonlyfirstinline`; `\Xnumberonlyfirstintwoline` and `\Xsymlinenum`.

### 6.2.2 Arbitrary text before line number

`\Xbeforenumber` `\Xbeforenumber` $\langle s \rangle$   $\{ \langle txt \rangle \}$  allow to insert  $\langle txt \rangle$  before the line number, only when the line number is printed, so taking into account `\Xnumberonlyfirstinline` and similar.

### 6.2.3 Separator for line range

`\Xlinerangeseparator` By default, the separator between the begin line and the end line in a lines' range is an en-dash in a normal font (`\textnormal{--}`). You can change it for critical footnotes with `\Xlinerangeseparator` $\langle s \rangle$   $\{ \langle text \rangle \}$ , and with `\Xendlinerangeseparator` $\langle s \rangle$   $\{ \langle text \rangle \}$  for critical endnotes.

### 6.2.4 Abbreviate line range

`\Xtwolines` If a lemma is printed on two subsequent lines, `reledmac` will print the first and the last line numbers. Instead of this, it is also possible to print an abbreviation which stands for "line 1 and subsequent line(s)".

To achieve this, use `\Xtwolines` $\langle s \rangle$   $\{ \langle text \rangle \}$  and `\Xmorethantwoline` $\langle s \rangle$   $\{ \langle text \rangle \}$ . The  $\langle text \rangle$  argument of `\Xtwolines` will be printed if the lemma is on two lines, and the  $\langle text \rangle$  argument of `\Xmorethantwoline` will be printed if the lemma is on three or more lines. For example:

```
\Xtwolines{sq.}
\Xmorethantwoline{sqq.}
```

will print "1sq." for a lemma which falls on lines 1–2 and "1sqq." for a lemma which falls on lines 1–4.

If you use `\Xtwolines` without setting `\Xmorethantwoline`, the  $\langle text \rangle$  argument of `\Xtwolines` will be used for lemmas which fall on three or more lines.

However, if you want to use a short form (when the lemma overlaps two lines, but not more than two), use `\Xtwolinesbutnotmore` $\langle series \rangle$ .

It is possible to disable this again with `\Xtwolinesbutnotmore` $\langle series \rangle$  `[false]`.

When you use lineation by page, the final page number, if different from the initial page number, will not be printed, because the final page number is included in the `\Xendtwolines` symbol.

<code>\Xtwolinesonlyinsamepage</code>	<p>However, you can force print the final page number with <code>\Xtwolinesonlyinsamepage[⟨series⟩]</code>.</p> <p>Use <code>\Xtwolinesonlyinsamepage[⟨series⟩][false]</code> to disable this.</p> <p>You can disable <code>\Xtwolines</code> and related for a specific note by using the ‘[fulllines]’ argument in the note macro cf. 5.2.2 p. 22.</p>
<code>\Xendtwolines</code>	For endnotes, use these macros: <code>\Xendtwolines</code> ; <code>\Xendmorethantwolines</code> ;
<code>\Xendmorethantwolines</code>	<code>\Xendtwolinesbutnotmore</code> ;
<code>\Xendtwolinesbutnotmore</code>	<code>\Xendtwolinesonlyinsamepage</code> instead of <code>\Xtwolines</code> ; <code>\Xmorethantwolines</code> ;
	<code>\Xtwolinesbutnotmore</code> ; <code>\Xtwolinesonlyinsamepage</code> .

### 6.2.5 Disable line number

<code>\Xnonumber</code>	<p>You can use <code>\Xnonumber[⟨s⟩]</code> if you do not want to have the line number in a footnote. To cancel it, use <code>\Xnonumber[⟨s⟩][false]</code>. <code>\Xendnonumber[⟨s⟩]</code> is the same for endnote.</p>
<code>\Xendnonumber</code>	

### 6.2.6 Printing pstart number

<code>\Xpstart</code>	<p>You can use <code>\Xpstart[⟨s⟩]</code> if you want to print the pstart number in the footnote, before the line and subline number. Use <code>\Xpstart[⟨s⟩][false]</code> to disable this. <code>⟨s⟩</code> can be empty if you want to disable it for every series. Note that when you change the lineation system, the option is automatically switched :</p> <ul style="list-style-type: none"> <li>• If you use lineation by pstart, the option is enabled.</li> <li>• If you use lineation by section or by page, the option is disabled.</li> </ul>
<code>\Xpstarteverytime</code>	<p>By default, the pstart number is printed only in the part of text where you have called <code>\numberpstarttrue</code>. We don’t know why you would like to print the pstart number in the notes and not in the main text. However, if you want to do it, you can call <code>\Xpstarteverytime[⟨s⟩]</code>. In this case, the pstart number will be printed every time in footnote.</p>
<code>\Xonlypstart</code>	<p>In combination with <code>\Xpstart</code>, you can use <code>\Xonlypstart[⟨s⟩]</code> if you want to print only the pstart number in the footnote, and not the line and subline number. Use <code>\Xonlypstart[⟨s⟩][false]</code> to disable this. <code>⟨s⟩</code> can be empty, if you want to disable it for every series.</p>

### 6.2.7 Printing stanza number

<code>\Xstanza</code>	<p>You can use <code>\Xstanza[⟨s⟩]</code> if you want to print the stanza number in the footnote, before the line and subline number. Use <code>\Xstanza[⟨s⟩][false]</code> to disable this. <code>⟨s⟩</code> can be empty if you want to disable it for every series.</p>
<code>\Xstanzaseparator</code>	<p>Of course the stanza number is printed only when you use <code>\numberstanza</code></p> <p>When using <code>\Xstanza</code>, you can use <code>\Xstanzaseparator[⟨s⟩]{⟨text⟩}</code> to print <code>⟨text⟩</code> after the stanza number. Default value is empty.</p>



### 6.2.8 Separator between line and subline numbers

`\Xsublinesep` `\Xsublinesep[⟨s⟩]{⟨txt⟩}` changes the separator between line and subline in footnotes.

**Employed without optional argument, it also change separator in side number.**

`\Xendsublinesep` `\Xendsublinesep[⟨s⟩]{⟨txt⟩}` does the same thing for endnotes.

**However, it does not change anything for the separator in side number. Use `\Xsublinesep` without optional argument or `\Xsublinesepside{⟨txt⟩}` to do it.**

The default value is `\textnormal{.}`.

### 6.2.9 Space around number

`\Xbeforenumber` With `\Xbeforenumber[⟨s⟩]{⟨l⟩}`, you can add some space before the line number in a footnote. If the line number is not printed, the space is not either. The default value is 0 pt.

`\Xafternumber` With `\Xafternumber[⟨s⟩]{⟨l⟩}` you can add some space after the line number in a footnote. If the line number is not printed, the space is not either. The default value is 0.5 em.

`\Xendbeforenumber` `\Xendbeforenumber` and `\Xendafternumber` are the equivalents of `\Xbeforenumber` and `\Xafternumber` for endnotes.

`\Xnonbreakableafternumber` By default, the space defined by `\Xafternumber` is breakable. With `\Xnonbreakableafternumber[⟨s⟩]` it becomes nonbreakable. Use `\Xnonbreakableafternumber[⟨s⟩][false]` to disable this. `⟨s⟩` can be empty if you want to disable it for every series.

### 6.2.10 Space around line symbol

`\Xbeforemsymlinum` With `\Xbeforemsymlinum[⟨s⟩]{⟨l⟩}` you can add some space before the line symbol in a footnote. The default value is value set by `\Xbeforenumber`.

`\Xaftersymlinum` With `\Xaftersymlinum[⟨s⟩]{⟨l⟩}` you can add some space after the line symbol in a footnote. The default value is value set by `\Xafternumber`.

`\Xendbeforemsymlinum` `\Xendbeforemsymlinum` and `\Xendaftersymlinum` are the equivalents of `\Xbeforemsymlinum` and `\Xaftersymlinum` for the endnotes.

### 6.2.11 Space in place of number

`\Xinplaceofnumber` If no number or symbolic line number is printed, you can add a space, with `\Xinplaceofnumber[⟨s⟩]{⟨l⟩}`. The default value is 1 em.

`\Xendinplaceofnumber` `\Xendinplaceofnumber[⟨s⟩]{⟨l⟩}` is the same, for critical endnotes.

### 6.2.12 Boxing line number and line symbol

`\Xboxlinenum` It could be useful to put the line number inside a fixed box: the content of the note will be printed after this box. You can use `\Xboxlinenum[⟨s⟩]{⟨l⟩}` to do that. To subsequently disable this feature, use `\Xboxlinenum` with length equal to 0 pt. One use of this feature is to print line number in a column, and the note in an other column:

`\Xhangindent{1em}`

`\Xafternumber{0em}`  
`\Xboxlinenum{1em}`

`\Xboxsymlinenum`      `\Xboxsymlinenum[⟨s⟩]{⟨l⟩}` is the same as `\Xboxlinenum` but for the line number symbol.  
`\Xendboxsymlinenum`      `\Xendboxsymlinenum[⟨s⟩]{⟨l⟩}` is the same as `\Xboxsymlinenum` but for endnotes.

`\Xboxlinenumalign`      If you put line number in box, it will be aligned left inside the box. However, you can change it using `\Xboxlinenumalign[⟨s⟩]{⟨text⟩}` where `⟨text⟩` can be the following:

**L** to align left (default value);

**R** to align right;

**C** to center.

When using `\Xboxlinenum`, reledmac put all the line number description in the same box. That is, the same box will contain: the start line number, the dash, and either the end line number or the range symbol (like ff.). However, it is possible to box them in two different boxes.

- `\Xboxstartlinenum[⟨s⟩]{⟨l⟩}` will box the start line number in a box of length `⟨l⟩`. The content will be put at the right of the box.
- `\Xboxendlinenum[⟨s⟩]{⟨l⟩}` will box the dash plus the end line number or the range symbol in a box of length `⟨l⟩`. The content will be put at the left of the box.

With these two commands, it is possible to horizontally align the dash of line number when using critical notes, to obtain something like:

1  
12-23  
24ff.

`\Xendboxlinenum`      `\Xendboxlinenum[⟨s⟩]{⟨l⟩}`, `\Xendboxlinenumalign[⟨s⟩]{⟨text⟩}`, `\Xendboxstartlinenum[⟨s⟩]{⟨l⟩}`  
`\Xendboxlinenumalign`      `\Xendboxendlinenum[⟨s⟩]{⟨l⟩}` are the same as, respectively, `\Xboxlinenum` and  
`\Xendboxstartlinenumalign`      `\Xboxlinenumalign`, `\Xboxstartlinenum`, `\Xboxendlinenum` except in endnotes.  
`\Xendboxendlinenumalign`

### 6.3 For endnotes

`\Xendbeforepagenumber`      `\Xendbeforepagenumber[⟨s⟩]{⟨text⟩}` defines the text before the page number in endnotes. Default value is p. (“p” followed by a dot).

`\Xendafterpagenumber`      `\Xendafterpagenumber[⟨s⟩]{⟨text⟩}` defines the text after the page number in endnotes. Default value is ) (open parenthesis followed by a single space). `\Xendlineprefixsingle[⟨s⟩]` defines the text before the line number in endnotes, when there is only one line. Default value is empty.

`\Xendlineprefixmore`      `\Xendlineprefixmore[⟨s⟩]{⟨text⟩}` defines the text before the line number in endnotes, when there is more than one line. Default value is empty. If you don’t define it, use the value defined by `\Xendlineprefixsingle`.

## 6.4 Arbitrary code around line number

<code>\Xendbhooklinenumber</code>	<code>\Xendbhooklinenumber[⟨s⟩]{⟨code⟩}</code> is used to execute code before line number in endnotes. The code is executed before the <code>\Xendbeforelinenumber</code> space and before the <code>\Xendnotenumfont</code> font setting.
<code>\Xendahooklinenumber</code>	<code>\Xendahooklinenumber[⟨s⟩]{⟨code⟩}</code> is used to execute code after line number in endnotes. The code is executed after the <code>\Xendafternumber</code> space.
<code>\Xendbhookinplaceofnumber</code>	<code>\Xendbhookinplaceofnumber[⟨s⟩]{⟨code⟩}</code> is used to execute code before space or symbol which replace line number in endnotes. The code is executed before the <code>\Xendbeforelinsymbol</code> space and before the <code>\Xendnotenumfont</code> font setting.
<code>\Xendahookinplaceofnumber</code>	<code>\Xendahookinplaceofnumber[⟨s⟩]{⟨code⟩}</code> is used to execute code after space or symbol which replace line number in endnotes. The code is executed after the <code>\Xendaftersymbol</code> space.

## 6.5 Separator between the lemma and the note

### 6.5.1 For footnotes

<code>\Xlemmaseparator</code>	By default, in a footnote, the separator between the lemma and the note is a right bracket ( <code>\rbracket</code> ) <sup>19</sup> . You can use <code>\Xlemmaseparator[⟨s⟩]{⟨Xlemmaseparator⟩}</code> to change it. The optional argument can be used to specify the series in which it is used. Note that there is a non-breakable space between the lemma and the separator, but a <b>breakable</b> space between the separator and the following text.
<code>\Xbeforelemmaseparator</code>	Using <code>\Xbeforelemmaseparator[⟨s⟩]{⟨l⟩}</code> you can add some space between lemma and separator. If your lemma separator is empty, this space won't be printed. The default value is 0 em.
<code>\Xafterlemmaseparator</code>	Using <code>\Xafterlemmaseparator[⟨s⟩]{⟨l⟩}</code> you can add some space between separator and note. If your lemma separator is empty, this space will not be printed. The default value is 0.5 em.
<code>\Xnolemmaseparator</code>	You can suppress the lemma separator, using <code>\Xnolemmaseparator[⟨s⟩]</code> , which is simply a alias of <code>\Xlemmaseparator[⟨s⟩]{}</code> .
<code>\Xinplaceoflemmaseparator</code>	With <code>\Xinplaceoflemmaseparator[⟨s⟩]{⟨l⟩}</code> you can add a space if no lemma separator is printed. The default value is 1 em.

### 6.5.2 For endnotes

<code>\Xendlemmaseparator</code>	By default, there is no separator inside endnotes between the lemma and the content of the note. You can use <code>\Xendlemmaseparator[⟨s⟩]{⟨Xendlemmaseparator⟩}</code> to change this. The optional argument can be used to specify the series in which it is used. A common value of <code>⟨Xendlemmaseparator⟩</code> is <code>\rbracket</code> . Note that there is a non-breakable space between the lemma and the separator, but a <b>breakable</b> space between the separator and the following text.
<code>\Xendbeforelemmaseparator</code>	Using <code>\Xendbeforelemmaseparator[⟨s⟩]{⟨l⟩}</code> you can add some space between the lemma and the separator. If your lemma separator is empty, this space won't be printed. The default value is 0 em.
<code>\Xendafterlemmaseparator</code>	Using <code>\Xendafterlemmaseparator[⟨s⟩]{⟨l⟩}</code> you can add some space between

<sup>19</sup>For polyglossia, when the lemma is RTL, the bracket automatically switches to a left bracket.

the separator and the content of the note. If your lemma separator is empty, this space won't be printed. The default value is 0.5 em.

`\Xendinplaceoflemmaseparator`

With `\Xendinplaceoflemmaseparator[⟨s⟩]{⟨l⟩}` you can add some space if you chose to remove the lemma separator. The default value is 0.5 em.

## 6.6 Font style

### 6.6.1 For line number

`\Xnotenumfont`

`\Xnotenumfont[⟨s⟩]{⟨command⟩}` is used to change the font style for line numbers in critical footnotes ; `⟨command⟩` must be one (or more) switching command, like `\bfseries`.

`\Xendnotenumfont`

`\Xendnotenumfont[⟨s⟩]{⟨command⟩}` is used to change the font style for line numbers in critical footnotes. `⟨command⟩` must be one (or more) switching command, like `\bfseries`.

`\notenumfontX`

`\notenumfontX[⟨s⟩]{⟨command⟩}` is used to change the font style for note numbers in familiar footnotes. `⟨command⟩` must be one (or more) switching command, like `\bfseries`.

### 6.6.2 For the lemma

`\Xlemmadisablefontselection`

By default, font of the lemma in footnote is the same as font of the lemma in the main text. For example, if the lemma is in italic in the main text, it is also in italic in note. The `\Xlemmadisablefontselection[⟨s⟩]` command allows to disable it for a specific series.

`\Xendlemmadisablefontselection`

By default, font of the lemma in endnote is the same as font of the lemma in the main text. For example, if the lemma is in italic in the main text, it is also in italic in note. The command allows `\Xendlemmadisablefontselection[⟨s⟩]` to disable it for a specific series.

### 6.6.3 For all notes

`\Xnotefontsize`

`\Xnotefontsize[⟨s⟩]{⟨command⟩}` is used to define the font size of critical footnotes of the series. The default value is `\footnotesize`. The `⟨command⟩` must not be a size in pt, but a standard  $\text{\LaTeX}$  size, like `\small`.

`\notefontsizeX`

`\notefontsizeX[⟨s⟩]{⟨command⟩}` is used to define the font size of familiar footnotes of the series. The default value is `\footnotesize`. The `⟨command⟩` must not be a size in pt, but a standard  $\text{\LaTeX}$  size, like `\small`.

`\Xendnotefontsize`

`\Xendnotefontsize[⟨s⟩]{⟨l⟩}` is used to define the font size of end critical footnotes of the series. The default value is `\footnotesize`. The `⟨command⟩` must not be a size in pt, but a standard  $\text{\LaTeX}$  size, like `\small`.

## 6.7 Indent of notes content

`\Xparindent`

By default, `reledmac` does not add indentation before the paragraphs inside critical footnotes. Use `\Xparindent[⟨s⟩]` to enable indentation.

`\parindentX`

By default, `reledmac` does not add indentation before the paragraphs inside familiar

footnotes. Use `\parindentX[⟨s⟩]` to enable indentation.

`\Xhangindent` For critical notes NOT paragraphed you can define an indent with `\Xhangindent[⟨s⟩]{⟨l⟩}`, which will be applied in the second line of notes. It can help to make distinction between a new note and a break in a note. The default value is 0 pt.

`\hangindentX` For familiar notes NOT paragraphed you can define an indentation with `\hangindentX[⟨s⟩]{⟨l⟩}`, which will be applied in the second line of notes. It can help to make a distinction between a new note and a break in a note.

`\Xendhangindent` For critical endnotes NOT paragraphed you can define an indentation with `\Xendhangindent[⟨s⟩]{⟨l⟩}`, which will be applied in the second line of notes. It can help to make a distinction between a new note and a break in a note.

## 6.8 Arbitrary code at the beginning of notes

The three next commands add arbitrary code at the beginning of notes. As the name's space is local to the notes, you can use it to redefine some style inside the notes. For example, if you don't want the pstart number to be in bold, use :

```
\Xbhooknote{\renewcommand{\thepstart}{\arabic{pstart}.}}
```

`\Xbhooknote` `\Xbhooknote[⟨s⟩]{⟨code⟩}` is to be used at the beginning of the critical footnotes.  
`\bhooknoteX` `\bhooknoteX[⟨s⟩]{⟨code⟩}` is to be used at the beginning of the familiar footnotes.  
`\Xendbhooknote` `\Xendbhooknote[⟨s⟩]{⟨code⟩}` is to be used at the beginning of the endnotes.

## 6.9 Options for footnotes in columns

### 6.9.1 Alignment

`\Xcolalign` By default, text in footnotes of two or three columns are flush left and without hyphenation. However, you can change this with `\Xcolalign[⟨s⟩]{⟨code⟩}` for critical footnotes, and `\colalignX[⟨s⟩]{⟨code⟩}` for familiar footnotes.

`<code>` must be one of the following command:

`\justifying` to have text justified, as usual with  $\text{\LaTeX}$ . You can also let `<code>` empty.

`\raggedright` to have text left aligned, but *without hyphenation*. That is the default `reledmac` setting.

`\RaggedRight` to have text left aligned *with hyphenation* (requires `ragged2e`).

`\raggedleft` to have text right aligned, but *without hyphenation*.

`\RaggedLeft` to have text right aligned *with hyphenation* (requires `ragged2e`).

`\centering` to have text centered, but *without hyphenation*.

`\Centering` to have text centered *with hyphenation* (requires `ragged2e`).

### 6.9.2 Size of the columns

For the following four macros, be careful that the columns are made from right to left.

<code>\Xhsizetwocol</code>	<code>\Xhsizetwocol[⟨s⟩]{⟨l⟩}</code> is used to change width of a column when critical notes are displaying in two columns. Default value is <code>.45 \hsizetwocol</code> .
<code>\Xhsizethreecol</code>	<code>\Xhsizethreecol[⟨s⟩]{⟨l⟩}</code> is used to change width of a column when critical notes are displaying in three columns. Default value is <code>.3 \hsizethreecol</code> .
<code>\hsizetwocolX</code>	<code>\hsizetwocolX[⟨s⟩]{⟨l⟩}</code> is used to change width of a column when familiar notes are displaying in two columns. Default value is <code>.45 \hsizetwocolX</code> .
<code>\hsizethreecolX</code>	<code>\hsizethreecolX[⟨s⟩]{⟨l⟩}</code> is used to change width of a column when familiar notes are displaying in three columns. Default value is <code>.3 \hsizethreecolX</code> .

## 6.10 Options for paragraphed footnotes

### 6.10.1 Mark separation of notes

<code>\Xafternote</code>	You can add some space after a note by using <code>\Xafternote[⟨s⟩]{⟨l⟩}</code> (for critical footnotes) or <code>\afternoteX[⟨s⟩]{⟨l⟩}</code> (for familiar footnotes). The default value is <code>1em plus .4em minus .4em</code> .
<code>\afternoteX</code>	
<code>\Xparafootsep</code>	For paragraphed footnotes (see below), you can choose the separator between each note by using <code>\Xparafootsep[⟨s⟩]{⟨text⟩}</code> for critical notes and <code>\parafootsepX</code> for familiar notes. A common separator is the double pipe ( <code>  </code> ), which you can set by using <code>\Xparafootsep{\${\parallel}\$}</code> .
<code>\parafootsepX</code>	

Note that if the symbol defined by `\Xsymlinenum` must be used at the beginning of a note, the `\Xparafootsep` / `\parafootsepX` is not used before this note.

### 6.10.2 Ragged text

<code>\Xragged</code>	Text in paragraphed critical notes is justified, but you can use <code>\Xragged[⟨s⟩]{L}</code> if you want it to be ragged left (i.e., right justified), or <code>\Xragged[⟨s⟩]{R}</code> if you want it to be ragged right (i.e., left justified).
<code>\raggedX</code>	Text in paragraphed footnotes is justified, but you can use <code>\raggedX[⟨s⟩]{L}</code> if you want it to be ragged left, or <code>\raggedX[⟨s⟩]{R}</code> if you want it to be ragged right.

## 6.11 Options for block of notes

### 6.11.1 Text before notes

<code>\Xtxtbeforenotes</code>	You can add text before critical notes with <code>\Xtxtbeforenotes[⟨s⟩]{⟨text⟩}</code> .
-------------------------------	--

### 6.11.2 Code before notes

<code>Xhookgroup</code>	While <code>\Xtxtbeforenotes</code> is for typesetting code before notes, <code>\Xhookgroup</code> and <code>\hookgroupX</code> (respectively for critical and familiar) are for executing code before a groups of notes, between the rules and the printing of the notes.
<code>bhookgroupX</code>	

### 6.11.3 Spacing

`\Xbeforenotes` You can change the vertical space before the rule of the critical notes with `\Xbeforenotes[⟨s⟩]{⟨l⟩}`. The default value is 1.2em plus .6em minus .6em.

**Be careful, the standard L<sup>A</sup>T<sub>E</sub>X footnote rule used by reledmac decreases by 3pt. This 3pt decrease is not changed by this command.**

`\beforenotesX` You can change the vertical space printed before the rule of the familiar notes with `\beforenotesX[⟨s⟩]{⟨l⟩}`. The default value is 1.2em plus .6em minus .6em.

**Be careful, the standard L<sup>A</sup>T<sub>E</sub>X footnote rule, which is used by reledmac, decreases 3pt. These 3pt are not changed by this command.**

`\preXnotes` You can set the space before the first series of critical notes printed on each page and set a different amount of space for each subsequent series on the page. You can do it with `\preXnotes{⟨l⟩}`. The default value is 0pt. You can disable this feature by setting the length to 0pt.

`\prenotesX` You can set the space before the first printed (in a page) series of familiar notes to be different from the space before other series. The default value is 0pt. You can do this with `\prenotesX{⟨l⟩}`. You can disable this feature by setting the length to 0pt.

### 6.11.4 Rule

`\Xafterrule` You can change the vertical space printed after the rule of the critical notes with `\Xafterrule[⟨s⟩]{⟨l⟩}`. The default value is 0pt.

**Be careful, the standard L<sup>A</sup>T<sub>E</sub>X footnote rule, which is used by reledmac, adds 2.6pt. These 2.6pt are not changed by this command.**

`\afterruleX` You can change the vertical space printed after the rule of the familiar notes with `\afterruleX[⟨s⟩]{⟨l⟩}`. The default value is 0pt.

**Be careful, the standard L<sup>A</sup>T<sub>E</sub>X footnote rule, which is used by reledmac, adds 2.6pt. These 2.6pt are not changed by this command.**

### 6.11.5 Maximum height

`\Xmaxhnotes` By default, one series of critical notes can take up to 80% of `\vsize`, before being broken to the next page. If you want to change the size use `\Xmaxhnotes[⟨s⟩]{⟨l⟩}`. Be careful : the length can't be flexible, and is relative to the the current font. For example, if you want the note to take, at most, 33% of the text height, do `\Xmaxhnotes{.33\textheight}`.

`\maxhnotesX` `\maxhnotesX[⟨s⟩]{⟨l⟩}` is the same as previous, but for familiar footnotes.

Note that in many cases, you should call these commands, because the `\vsize` in the preamble is not the same as `\vsize` after the preamble. That why we recommend to you to add in your preamble

```
\maxhnotesX{0.8\textheight}
\Xmaxhnotes{0.8\textheight}
```

Be careful with the two previous commands. Actually, for technical purposes, one paragraphed note is considered as one block. Consequently, it cannot be broken between two pages, even if you used these commands. The debug is in the todolist.



## 6.12 Footnotes and the `reledpar` columns

`\noteswidthliketwocolumns`  
`noteswidthliketwocolumnsX`

If you use `reledpar \columns` macro, you can call :

- `\Xnoteswidthliketwocolumns[⟨s⟩]` to create critical notes with a two-column size width. Use `\Xnoteswidthliketwocolumns[⟨s⟩][false]` to disable it.
- `\noteswidthliketwocolumnsX[⟨s⟩]` to create familiar notes with a two-column size width. Use `\noteswidthliketwocolumnsX[⟨s⟩][false]` to disable it.

## 6.13 Endnotes in one paragraph

`\Xendparagraph`

By default, any new endnote starts a new paragraph. Use `\Xendparagraph[⟨s⟩]` to have all end notes of one given series set in one paragraph.

`\Xendafternote`

You can add some space after a endnote series by using `\Xendafternote[⟨s⟩]{⟨l⟩}`. The default value is `1em plus.4em minus.4em`.

`\Xendsep`

You can choose the separator between each note by `\Xendsep[⟨s⟩]{⟨text⟩}`. A common separator is the double pipe (`||`), which you can set by using `\Xendsep{${\parallel}$}`.

## 7 Fonts

One of the most important features of the appearance of the notes, and indeed of your whole document, will be the fonts used. We will first describe the commands that give you control over the use of fonts in the different structural elements of the document, especially within the notes, and then in subsequent sections specify how these commands are used.

For those who are setting up for a large job, here is a list of the complete set of `reledmac` macros relating to fonts that are intended for manipulation by the user: `\endashchar`, `\fullstop`, `\numlabfont`, and `\rbracket`.

`\numlabfont`

Line numbers for the main text are usually printed in a smaller font in the margin. The `\numlabfont` macro is provided as a standard name for that font: it is initially defined as

```
\newcommand{\numlabfont}{\normalfont\scriptsize}
```

You might wish to use a different font if, for example, you preferred to have these line numbers printed using old-style numerals.

`\select@lemmafont`

We will briefly discuss `\select@lemmafont` here because it is important to know about it now, although it is not one of the macros you would expect to change in the course of a simple job. Hence it is ‘protected’ by having the `@`-sign in its name.

When you use the `\edtext` macro to mark a word in your text as a lemma, that word will normally be printed again in your apparatus. If the word in the text happens to be in a font such as italic or bold you would probably expect it to appear in the apparatus in the same font. This becomes an absolute necessity if the font is actually a different script, such as Arabic or Cyrillic. `\select@lemmafont` does the work of decoding `reledmac`’s data about the fonts used to print the lemma in the main text and calling up those fonts for printing the lemma in the note.

`\select@lemmafont` is a macro that takes one long argument—the cluster of line numbers passed to the note commands. This cluster ends with a code indicating what



fonts were in use at the start of the lemma. `\select@lemmafont` selects the appropriate font for the note using that font specifier.

`reledmac` uses `\select@lemmafont` in a standard footnote format macro called `\normalfootfmt`. The footnote formats for each of the layers A to E are `\let` equal to `\normalfootfmt`. So all the layers of the footnotes are formatted in the same way.

## 8 Verse

### 8.1 Basic

`\stanza` Use `\stanza` at the start of a stanza. Each line in a stanza is ended by an ampersand (&), and the stanza itself is ended by putting `\&` at the end of the last line.

### 8.2 Define stanza indents

`\stanzaindentbase` Lines within a stanza may be indented. The indents are integer multiples of the length `\stanzaindentbase`, whose default value is 20pt.

`\setstanzaindents` In order to use the stanza macros, **one must set the indentation values**. First the value of `\stanzaindentbase` should be set, unless the default value 20pt is desired. Every stanza line indentation is a multiple of this.

To specify these multiples one invokes, for example `\setstanzaindents{3,1,2,1,2}`.

The numerical entries must be whole numbers, 0 or greater, separated by commas without embedded spaces. The first entry gives the hanging indentation to be used if the stanza line requires more than one print line.

If it is known that each stanza line will fit in one print line, then this first entry should be 0;  $\TeX$  does less work in this case, but no harm ensues if the hanging indentation is not 0 but is never used.

If you want the hanging verse to be flush right, you can use `\sethanginsymbol:` see p. 8.6 p. 43.

Enumeration is by stanza lines, not by print lines. In the above example the lines are indented one unit, two units, one unit, two units, with 3 units of hanging indentation in case a stanza line is too long to fit on one print line.

### 8.3 Repeating stanza indents

Since version 0.13, if the indentation is repeated every  $n$  verses of the stanza, you can define only the  $n$  first indentations, and indicate that they are repeated, defining the value of the `stanzaindentsrepetition` counter at  $n$ . For example:

```
\setstanzaindents{5,1,0}
\setcounter{stanzaindentsrepetition}{2}
```

is like

```
\setstanzaindents{5,1,0,1,0,1,0,1,0,1,0}
```

**Be careful: the feature is changed in `eledmac` 1.5.1. See Appendix A.3 p. 302.**

If you don't use the `stanzaindentsrepetition` counter, make sure you have at least one more numerical entry in `\setstanzavalues` than the number of lines in the stanza.

If you want to disable this feature again, just put the counter to 0:

```
\setcounter{stanzaindentsrepetition}{0}
```

The macros make no restriction on the number of lines in a stanza. Stanza indentation values (and penalty values) obey  $\TeX$ 's grouping conventions, so if one stanza among several has a different structure, its indentations (penalties) may be set within a group; the prior values will be restored when the group ends.

## 8.4 Manual stanza indent

```
\stanzaindent  
\stanzaindent*
```

You can set the indent of some specific verse by calling `\stanzaindent{⟨value⟩}` at the beginning of the verse, before any other character. In this case, the indent defined by `\setstanzaindents` for this verse is skipped, and `{⟨value⟩}` is used instead.

If you use the mechanism of indent repetition, the next verse will be printed as it should be even if the current verse would have its normal indent value. In other words, using `\stanzaindent` in a verse does not shift the indent repetition.

However, if you want to shift the indent repetition, so the next verse has the indent normally used for the current verse, use `\stanzaindent*` instead of `\stanzaindent`.

## 8.5 Stanza breaking

```
\setstanzapenalties
```

When the stanzas run over several pages, it is often desirable that page breaks should arise between certain lines in the stanza, so a facility for including penalties after stanza lines is provided. If you are satisfied with the page breaks, you need not set the penalty values.

The command

```
\setstanzapenalties{1,5000,10100,5000,0}
```

results in a penalty of 5000 being placed after the first and third lines of the stanza, and a penalty of  $-100$  after the second.

The first entry "1" is a control value. If it is zero, then no penalties are passed on to  $\TeX$ , which is the default. Values between 0 and 10000 are penalty values; values between 10001 and 20000 have 10000 subtracted and the result is given as a negative penalty. The mechanism used for indentations and penalties requires unsigned values less than 32768. No penalty is placed after the last line, so the final ,0 in then example above could be omitted. A penalty of 10000 will prevent a page break; such a penalty is included automatically where there is stanza hanging indentation. A penalty of  $-10000$  (corresponding to the entry value 20000 in this context) forces a page break. Values in between act as suggestions as to the desirability of a page break at a given line. There is

a subtle interaction between penalties and *glue*, so it may take some adjustment of skips and penalties to achieve the best results.

## 8.6 Hanging symbol

It is possible to insert a symbol in each line of hanging verse, as in French typography; for example, the opening bracket ‘[’. To insert it in `reledmac`, use macro `\sethangingsymbol{<h>}` with this code. In the example of French typography, do

`\sethangingsymbol`

```
\sethangingsymbol{[,}
```

You can also use it to force hanging verse to be flush right:

```
\sethangingsymbol{\protect\hfill}
```

## 8.7 Long verse and page break

If you want to prevent page breaks inside long verses, use the option `nopbinverse` when loading package, or use `\lednopbinversetrue`. Read 16.2 p. 57 for further details.

## 8.8 Content before/after verses

It is possible to add content, like a subtitle or a spacing, before or after verse:

- `\stanza` command can take a optional argument (in brackets). Its content will be printed before the stanza.
- `&` can be replaced by `\newverse` with two optional arguments (in brackets). The first will be printed after the current verse, the second before the next verse.
- `\&` can take a optional argument (in brackets). Its content will be printed after the stanza.

## 8.9 Numbering stanza

`\numberstanzatrue`

`\numberstanzafalse`

If you want to automatically number stanzas, use `\numberstanzatrue`. In this case, the line number will restart at each `\stanza`.

If you want to disable this feature again, use `\numberstanzafalse`.

You can use this feature in combination with `\Xstanza` (6.2.7 p. 32).

`thestanza`

. You can redefine `\thestanza` to change the aspect of stanza number. Default value is:

```
\renewcommand{\thestanza}{%
  \textbf{\arabic{stanza}}%
}
```

You can change the value of the `stanza` counter with the usual commands of  $\TeX$ .  
`\stanzanumwrapper` You can redefine `\stanzanumwrapper` in order to modify the way the stanza number is inserted in the flow of text. Default value is:

```
\newcommand{\stanzanumwrapper}[1]{%
  \flagstanza{#1}%
}
```

### 8.10 Various tools

`\ampersand` If you need to print an `&` symbol in a stanza, use the `\ampersand` macro, not `\&` which will end the stanza.  
`\flagstanza` Putting `\flagstanza[⟨len⟩]{⟨text⟩}` at the start of a line in a stanza (or elsewhere) will typeset `⟨text⟩` at a distance `⟨len⟩` before the line. The default `⟨len⟩` is `\stanzaindentbase`.

### 8.11 Notes on empty lines

Since v2.3.0 of `reledmac`, empty lines when typesetting verses no longer produce new paragraphs, and consequently, do not insert vertical spaces. Use optional argument of `\stanza` or `\newverse` to insert vertical space (8.8 p. 43).

## 9 Grouping

In a `minipage` environment  $\TeX$  changes `\footnote` numbering from arabic to alphabetic and puts the footnotes at the end of the `minipage`.

`minipage` You can put numbered text with critical footnotes in a `minipage` and the footnotes are set at the end of the `minipage`.

You can also put familiar footnotes (see section 5.4) in a `minipage` but unlike with `\footnote` the numbering scheme is unaltered.

`ledgroup` Minipages, of course, are not broken across pages. Footnotes in a `ledgroup` environment are typeset at the end of the environment, as with `minipages`, but the environment includes normal page breaks. The environment makes no change to the `textwidth` so it appears as normal text; it just might be that footnotes appear in the middle of a page, with text above and below.

`ledgroupsize` The `ledgroupsize` environment is similar to `ledroup` except that you must specify a width for the environment, as with a `minipage`.  
`\begin{ledgroupsize}[⟨pos⟩]{⟨width⟩}`.

The required `⟨width⟩` argument is the text width for the environment. The optional `⟨pos⟩` argument is for positioning numbered text within the normal `textwidth`. It may be one of the characters:

l (left) numbered text is flush left with respect to the normal `textwidth`. This is the default.

c (center) numbered text is in the center of the `textwidth`.

r (right) numbered text is flush right with respect to the normal textwidth.

Note that normal text, footnotes, and so forth are all flush left.

`\begin{ledgroupsize}{\textwidth}` is effectively the same as `\begin{ledgroup}`

## 10 Cross referencing

The package provides a simple cross-referencing facility that allows you to mark places in the text with labels, and generate page and line number references to those places elsewhere using those labels.

### 10.1 Basic use

`\edlabel` First you place a label in the text using the command `\edlabel{<lab>}`. `<lab>` can be almost anything you like, including letters, numbers, punctuation, or a combination—anything but spaces; you might type `\edlabel{toves-3}`, for example.<sup>20</sup>

`\edpageref` Elsewhere in the text, either before or after the `\edlabel`, you can refer to its location via `\edpageref{<lab>}`, or `\edlineref{<lab>}` will produce, respectively, the page, line, sub-line and pstart on which the `\edlabel{<lab>}` command occurred.

`\sublineref` Note that the `\edlineref` command insert the side flag after the line number.

`\pstartref` An `\edlabel` command may appear in the main text, or in the first argument of `\edtext`, but not in the apparatus itself. But `\edpageref`, `\edlineref`, `\sublineref`, `\pstartref` commands can also be used in the apparatus to refer to `\edlabels` in the text.

The `\edlabel` command works by writing macros to `ℒTEX.aux` file. You will need to process your document through `ℒTEX` twice in order for the references to be resolved.

You will be warned if you use `\edlabel{foo}` and `foo` has been used as a label before. The `ref` commands will return references to the last place in the file marked with this label. You will also be warned if a reference is made to an undefined label. (This will also happen the first time you process a document after adding a new `\edlabel` command: the auxiliary file will not have been updated yet.)

### 10.2 Cross-referencing to a critical note

If you when to refer to a word which is a lemma word, the `\edlabel` command should be in the first argument of `\edtext` command.

If you want to refer to the content of a `\Xfootnote`, the line and subline number printed will be the start line.

If you want to refers to the start and end lines, you should use `\appref` and related tools (10.6.2 p. 47).

### 10.3 Cross-referencing which return a number in any case

`\xpageref` Where #1 stands for the reference.

`\xlineref`

`\xsublineref`

`\xpstartref`

<sup>20</sup>More precisely, you should stick to characters in the `TEX` categories of “letter” and “other”.

However, there are situations in which you will want `reledmac` to return a number without displaying any warning messages about undefined labels or the like: if you want to use the reference in a context where  $\TeX$  is looking for a number, such a warning will lead to a complaint that the number is missing. This is the case for references used within the argument to `\linenum`, for example (see 5.2.5 p. 24).

For this situation, four variants of the reference commands, with the `x` prefix, are supplied: `\xpageref`, `\xlineref`, `\xsublineref` and `\xpstartref`. They have these limitations:

- They will not tell you if the label is undefined.
- They must be preceded in the file by at least one of the four other cross-reference commands—e.g., a `\edlabel{foo}` command, even if you never refer to that label—since those commands can all do the necessary processing of the `.aux` file, and the `\x...` ones cannot.
- When `hyperref` is loaded, the `hyperref` link will not be added. (Indeed, it is not a limitation, but a feature.)
- With `reledpar`, the `\xlineref` does not insert the right side flag, in order to obtain a line number. Use `\xflagref` to obtain the side flag, depending of your flag.

### 10.3.1 Cross-referencing in order to define line number of a critical note

`\xxref` The macros `\xxref` and `\edmakelabel` let you manipulate numbers and labels in ways which you may find helpful in tricky situations.

The `\xxref{<lab1>}{<lab2>}` command generates a reference to a sequence of lines, for use in the second argument of `\edtext`. It takes two arguments, both of which are labels: e.g., `\xxref{mouse}{elephant}`. It calls `\linenum` (q.v., 5.2.5 p. 24 above) and sets the beginning page, line and subline numbers to those of the place where `\edlabel{mouse}` was placed, and the ending numbers to those where `\edlabel{elephant}` occurs.

## 10.4 Not automatic cross-referencing

`\edmakelabel` Sometimes the `\edlabel` command cannot be used to specify exactly the page and line desired—for example, if you want to refer to a page and line number in another volume of your edition. In such cases, you can use the `\edmakelabel{<lab>}{<numbers>}` macro so that you can ‘roll your own’ label.

For example, if you type `\edmakelabel{elephant}{10|25|0}` you will create a new label, and a later call to `\edpageref{elephant}` would print ‘10’ and `\lineref{elephant}` would print ‘25’. The sub-line number here is zero. It is usually best to collect your `\edmakelabel` statements near the top of your document, so that you can see them at a glance.

## 10.5 Normal $\LaTeX$ cross-referencing

`\label`     The normal `\label`, `\ref` and `\pageref` macros may be used within numbered text,  
`\ref`     and operate in the familiar fashion.  
`\pageref`

## 10.6 References to start and end lines

### 10.6.1 Reference to main text lines

Many times, you may want to make a cross-reference to a passage that is defined by a start line and an end line. `reledmac` provides specific tools for this scenario.

`\edlabelS`     Use `\edlabelS{<label>}` to mark the start line of the passage.

`\edlabelE`     Use `\edlabelE{<label>}` to mark the end the end line of the passage. These two commands just create to label which are named `<label>:start` and `<label>:end`.

`\edlabelSE`     Use `\edlabelSE{<label>}` to mark just one location in the text. Contrary to a classical `\edlabel`, the `<label>` could be use with `\Seref` and `\Serefwithpage`.

`\Seref`     The main utility is to use them with three other commands. `\Seref{<label>}` will make a cross-reference printed as a reference in critical footnotes.

`\Serefwithpage`     `\Serefwithpage` will make a cross-reference printed as a reference in critical endnotes.

`\Serefonlypage`     `\Serefonlypage` will make a cross-reference printed only with page number.

### 10.6.2 References to lines commented in the apparatus

You may want to make a cross-reference to a passage that is referred to by `\edtext`. `reledmac` provides specific tools for this scenario.

`\applabel`     If you use `\applabel{<label>}` inside the second argument of a `\edtext`, `reledmac` will add a `\edlabel` at the beginning and end of the marked passage. The label at the beginning of the passage will have the title `<label>:start`, while the label at the end will have the title `<label>:end`.

If you use `\linenum` (5.2.5 p. 24) to refer to these labels, `reledmac` will use your line settings to refer to the passage.

`\appref`     You can also use `\appref{<label>}` and `\apprefwithpage{<label>}` to refer to these  
`\apprefwithpage` lines. The first one will print the lines as they are printed in the critical footnotes, while the second will print the lines as they are printed in endnotes.

### 10.6.3 Settings

`\setapprefprefixsingle`     **Specific to these tools** If you use `\apprefprefixsingle{<prefix>}`, `<prefix>` will be  
`\setapprefprefixmore` printed before the line numbers of a `\appref`-reference. If you use `\apprefprefixmore{<prefix>}`, `<prefix>` will be printed before the line numbers, if you refer to more than one line.

For example, you may use:

```
\setapprefprefixsingle{line~}
\setapprefprefixmore{lines~}
```

Note that if you have not used `\setapprefprefixmore` is empty, argument of `\setapprefprefixsingle` will be used in any case.

`\setSErefprefixsingle` and `\setSErefprefixmore` are similar for `\SEref` command.

**Linked to setting of critical endnotes and footnotes** Some commands who set the appearance of line numbers in critical footnotes also set the appearance of line numbers in `\appref` and `\SEref` if you call them *without the optional series argument*.

These commands are the following:

- `\Xlineflag` (for `reledpar`), enabled by default.
- `\Xlinerangeseparator`
- `\Xmorethantwolines`
- `\Xsublinesep`
- `\Xtwolines`
- `\Xtwolinesbutnotmore`
- `\Xtwolinesonlyinsamepage`

If you want to make settings specific to `\appref` or `\SEref`, just call them with an optional argument containing a comma-separated list of command names (for example `\appref,SEref`) or with a suffix equal to the command name (for example `\appref`).

The same principle is available for `\apprefwithpage`, `\SErefwithpage` and `\SErefonlypage` with the following commands:

- `\Xendafterpagenumber`
- `\Xendbeforepagenumber`
- `\Xendlineflag` (for `reledpar`), enabled by default.
- `\Xendlineprefixmore`
- `\Xendlineprefixsingle`
- `\Xendlinerangeseparator`
- `\Xendmorethantwolines`
- `\Xendsublinesep`
- `\Xendtwolines`
- `\Xendtwolinesbutnotmore`
- `\Xendtwolinesonlyinsamepage`



**For one specific command** When calling `\appref` and `\Seref`, you can use as a first optional argument, in brackets (`[]`), any optional argument which can be used for critical footnotes (5.2.2 p. 22).

When calling `\apprefwithpage`, `\Serefwithpage` or `\Serefonlypage` you can use as a first optional argument, in brackets (`[]`), any optional argument which can be used for critical endnotes (5.2.3 p. 23).

## 11 Side notes

### 11.1 Basics

The `\marginpar` command does not work in numbered text. Instead, the package provides for non-floating sidenotes in either margin.

`\ledinnernote` `\ledinnernote{<text>}` will put `<text>` into the inner margin level with where the command was issued. Similarly, `\ledouternote``{<text>}` puts `<text>` in the outer margin.

`\ledleftnote` `\ledsidenote{<text>}` will put `<text>` into the margin specified by the current setting of `\sidenotemargin{<location>}`. The permissible value for `<location>` is one out of the list `left`, `right`, `inner`, or `outer`, for example `\sidenotemargin{outer}`.

`\ledrightnote` `\ledsidenote` The package's default setting is `\sidenotemargin{right}`

to typeset `\ledsidenotes` in the right hand margin. This is the opposite of the default margin for line numbers. The style for a `\ledsidenote` follows that for a `\ledleftnote` or a `\ledrightnote` depending on the margin it is put in.

If two note commands for the same side are called in the same line, they will be appended and separated by a comma.

### 11.2 Setting

#### 11.2.1 Width

`\ledlsnotewidth` The left sidenote text is put into a box of width `\ledlsnotewidth` and the right text into a box of width `\ledrsnotewidth`. These are initially set to the value of `\marginparwidth`.

#### 11.2.2 Vertical position

`\rightnoteupfalse` By default, sidenotes are placed to align with the last line of the note to which it refers. If you want them to be placed to align with the first line of the note to which it refers, use `\leftnoteupfalse` (for left note) and/or `\rightnoteupfalse` (for right note).

#### 11.2.3 Distance to the main text

`\ledlsnotesep` The texts are put a distance `\ledlsnotesep` (or `\ledrsnotesep`) into the left (or right) margin. These lengths are initially set to the value of `\linenumsep`.

`\ledrsnotesep` These macros specify how the sidenote texts are to be typeset. The initial definitions  
`\ledlsnotefontsetup`  
`\ledrsnotefontsetup`

are:

```
\newcommand*{\ledlsnotefontsetup}{\raggedleft\footnotesize}% left
\newcommand*{\ledrsnotefontsetup}{\raggedright\footnotesize}% right
```

These can of course be changed to suit.

### 11.2.4 Separator between notes

`\setsidenotessep` If you have two or more sidenotes for the same line, they are separated by a comma. But if you want to change this separator, you can use `\setsidenotessep{<sep>}`.

## 12 Indexing

### 12.1 Basics

`\edindex`  $\TeX$  provides the `\index{<item>}` command for specifying that  $\langle item \rangle$  and the current page number should be added to the raw index (`idx`) file. The `\edindex{<item>}` macro can be used in numbered text to specify that  $\langle item \rangle$  and the current page & line number should be added to the raw index file.

Note that the file `.idx` will contain the right reference only after the third run, because of the internal indexing mechanism of `reledmac`. That means you must first run (Xe/Lua) $\TeX$  three times, then run `makeindex`, and then finally run (Xe/Lua) $\TeX$  again, in order to get an index with the right page numbers.

If the `imakeidx` or `indextools` package is used then the macro takes an optional argument, which is the name of a raw index file. For example `\edindex[line]{item}` will use `line.idx` as the raw file instead of `\jobname.idx`.

The minimal version of `imakeidx` package to be used is the version 1.3a uploaded on CTAN on 2013/07/11.

Be careful with the order of package loading and index declaration. You must use this order:

1. Load `imakeidx` or `indextools`.
2. Load `reledmac`.
3. Declare the index with the macro `\makeindex` of `imakeidx` and `indextools`.

### 12.2 Refer to a critical notes

If you want to refer to a word inside an `\edtext{<lemma>}{<app>}` command, the `\edindex` should be defined inside the first argument, e.g.,

```
The \edtext{creature\edlabel{elephant} was quite
unafraid}{\Afootnote{Of the mouse, that is.}}
```

If you add the `\edindex` inside some `\Xfootnote` command, it will refer to that note, and a suffix *n* will be added to the reference. You can redefine this suffix by redefining the command `\ledinnotemark`. Its actual definition is:

```
\newcommand{\ledinnotemark}[1]{#1\emph{n}}
```

## 12.3 Separator between page and line numbers

`\pagelinesep` The page & linenumber combination is written as `page\pagelinesep line`, where the default definition is `\newcommand{\pagelinesep}{-}` so that an item on page 3, line 5 will be noted as being at 3-5. You can renew `\pagelinesep` to get a different separator. - is the default separator used by the MAKEINDEX program.

Consequently, if you want to use an other `\pagelinesep`, you have to configure your `.ist` index style file. For example if you use `:` as separator<sup>21</sup>.

```
page_compositor ":"
delim_r ":"
```

Read the MAKEINDEX program's handbook about the `.ist` file.

## 12.4 Using xindy

Should you decide to use `xindy` instead of `makeindex` to transform your `.idx` files into `.ind` files, you must use some specific configuration file (`.xdy`) so that `xindy` can understand `eledmac` reference syntax of which the scheme is:

pagenumber-linenummer

An example of such a file is provided in the "examples" folder. Read the `xindy` handbook to learn how to use it.<sup>22</sup>

This file also provides, with an explanation, the settings that are needed to put `reledmac` lines numbers in parenthesis, in order to make a better distinction between line numbers and page ranges.

In any case, you must load `reledmac` with the `xindy` option, in order to generate a `.xdy` file which is specific to your document. This file is needed by the `.xdy` example file which is in the "examples" folder. Its default name is `reledmac-markup-attr.xdy`, but you can change it by using your own as an argument of the `xindy+hyperref` option.

If you chose to use both `xindy` and the `hyperref` package, you must do three more things:

1. Use `xindy+hyperref` option when loading the `reledmac` package. When you run (Xe/Lua)TeX with this option, a `.xdy` configuration file will be generated with all the settings needed to allow internal hyperlinking in each index entry which is created by `\edindex`.
2. Use `hyperindex=false` option when loading `hyperref`.

<sup>21</sup>For further detail, you can read <http://tex.stackexchange.com/a/32783/7712>.

<sup>22</sup>Or, for people who read French, read <http://geekographie.maieul.net/174>.

3. Uncomment — by removing the semicolons at the beginning of the relevant lines — some lines in the `<code>.xdy</code>` file provided in the “examples” folder in order to restore internal links in the index to be used by the standard `index` command.<sup>23</sup>.

## 12.5 Advanced setting

`\edindexlab` The `\edindex` process uses a `\label` and `\ref` mechanism to get the correct line number. It automatically generates labels of the form `\label{\edindexlab N}`, where `N` is a number, and the default definition of `\edindexlab` is:

```
\newcommand*{\edindexlab}{\&}
```

in the hopes that this will not be used by any other labels (`\edindex`’s labels are like `\label{\&27}`). You can change `\edindexlab` to something else if you need to.

## 13 Tabular material

TeX’s normal tabular and array environments cannot be used where line numbering is being done; more precisely, they can be used but with odd results, so don’t use them. However, `reledmac` provides some simple tabulation environments that can be line numbered. The environments can also be used in normal unnumbered text.

`edarrayl` There are six environments; the `edarray*` environments are for math and `edtabular*` for text entries. The final `l`, `c`, or `r` in the environment names indicate that the entries will be flushleft (`l`), centered (`c`) or flushright (`r`). There is no means of specifying different formats for each column, nor for specifying a fixed width for a column. The environments are centered with respect to the surrounding text.

```
\begin{edtabularc}
1 & 2 & 3 \\
a & bb & ccc \\
AAA & BB & C
\end{edtabularc}
```

1	2	3
a	bb	ccc
AAA	BB	C

Entries in the environments are the same as for the normal array and tabular environments but there must be no ending `\\` at the end of the last row. *There must be the same number of column designators (the `&`) in each row.* There is no equivalent to any line drawing commands (such as `\hline`). However, unlike the normal environments, the `ed...` environments can cross page breaks.

Macros like `\edtext` can be used as part of an entry.

For example:

```
\beginnumbering
\pstart
\begin{edtabularl}
\textbf{\Large I} & & wish I was a little bug\edindex{bug} &
\textbf{\Large I} & & eat my peas with honey\edindex{honey} \\
& & With whiskers \edtext{round}{\Afootnote{around}} my tummy &
& & & &
```

<sup>23</sup>These are the recommended lines to provide the best possible compatibility between `hyperref` and `xindy`, even without using `reledmac`.

```
& I've done it all my life. \\
& I'd climb into a honey\edindex{honey} pot &
& It makes the peas taste funny \\
& And get my tummy gummy.\edindex{gummy} &
& But it keeps them on the knife.
\end{edtabularr}
\pend
\endnumbering
```

produces the following parallel pair of verses.

1	I wish I was a little bug	I eat my peas with honey
2	With whiskers round my tummy	I've done it all my life.
3	I'd climb into a honey pot	It makes the peas taste funny
4	And get my tummy gummy.	But it keeps them on the knife.

`\edtabcolsep` The distance between the columns is controlled by the length `\edtabcolsep`.  
`\spreadmath` `\spreadmath{⟨math⟩}` typesets `⟨math⟩` but the `⟨math⟩` has no effect on the  
`\spreadtext` calculation of column widths. `\spreadtext{⟨text⟩}` is the analagous command for use  
in `edtabular` environments.

```

\begin{edarrayl}
1 & 2 & 3 & 4 \\
& \spreadmath{F+G+C} & & \\
a & bb & ccc & dddd
\end{edarrayl}

```

$$\begin{array}{cccc}
1 & 2 & 3 & 4 \\
& F + G + C & & \\
a & bb & ccc & dddd
\end{array}$$

`\edrowfill` The macro `\edrowfill{⟨start⟩}{⟨end⟩}{⟨fill⟩}` fills columns number `⟨start⟩` to `⟨end⟩` inclusive with `⟨fill⟩`. The `⟨fill⟩` argument can be any horizontal ‘fill’. For example `\hrulefill` or `\upbracefill`.

Note that every row must have the same number of columns, even if some would not appear to be necessary.

The `\edrowfill` macro can be used in both tabular and array environments. The typeset appearance of the following code is shown below.

```
\begin{edtabularr}
1          & 2      & 3      & 4      & 5      & \\
Q          &        & fd     & h      & qwertziohg & \\
v          & wptz   & x      & y      & vb      & \\
g          & nnn    & \edrowfill{3}{5}{\upbracefill} & & & \\
\edrowfill{1}{3}{\downbracefill} &        &        & pq     & dgh     & \\
k          &        & l      & co     & ghweropjklmnbvcxys & \\
1          & 2      & 3      & \edrowfill{4}{5}{\hrulefill} & & \\
\end{tabularr}
```

1	2	3	4	5
Q		fd	h	qwertziohg
v	wptz	x	y	vb
g	nnn			
k			pq	dgh
1	2	3	co	ghweropjklmnbcxys

You can also define your own ‘fill’. For example:

```
\newcommand*{\upbracketfill}{%
  \vrule height 4pt depth 0pt\hrulefill\vrule height 4pt depth 0pt}
```

is a fill like `\upbracefill` except it has the appearance of a (horizontal) bracket instead of a brace. It can be used like this:

```
\begin{edarrayc}
1 & 2 & & & 3 & 4 & \\
a & \edrowfill{2}{3}{\upbracketfill} & & & d & \\
A & B & & & C & D & \\
\end{edarrayc}
```

1	2	3	4
a	└─		d
A	B	C	D

`\edatleft`      `\edatleft[ $\langle math \rangle$ ]{ $\langle symbol \rangle$ }{ $\langle halfheight \rangle$ }` typesets the math  $\langle symbol \rangle$  as  $\left\{\langle symbol \rangle\right\}$  with the optional  $\langle math \rangle$  centered before it. The  $\langle symbol \rangle$  is twice  $\langle halfheight \rangle$  tall. The `\edatright` macro is similar and it typesets  $\right\{\langle symbol \rangle\}$  with  $\langle math \rangle$  centered after it.

```
\begin{edarrayc}
& 1 & 2 & 3 & & \\
& 4 & 5 & 6 & & \\
\edatleft[left =]{\{ }{1.5\baselineskip}
& 7 & 8 & 9 & & \\
\edatright[= right]{\} }{1.5\baselineskip}
\end{edarrayc}
```

$$left = \left\{ \begin{array}{ccc} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{array} \right\} = right$$

`\edbeforetab`      `\edbeforetab{ $\langle text \rangle$ }{ $\langle entry \rangle$ }`, where  $\langle entry \rangle$  is an entry in the leftmost column,  
`\edaftertab`      typesets  $\langle text \rangle$  left justified before the  $\langle entry \rangle$ . Similarly `\edaftertab{ $\langle entry \rangle$ }{ $\langle text \rangle$ }`,

where  $\langle entry \rangle$  is an entry in the rightmost column, typesets  $\langle text \rangle$  right justified after the  $\langle entry \rangle$ .

For example:

```
\begin{edarrayl}
      A & 1 & 2 & 3 \\\
\edbeforetab{Before}{B} & 1 & 3 & 6 \\\
      C & 1 & 4 & \edaftertab{8}{After} \\\
      D & 1 & 5 & 0
\end{edarrayl}
```

Before	$A$ 1 2 3 $B$ 1 3 6 $C$ 1 4 8 $D$ 1 5 0	After
--------	--	-------

**\edvertline**      The macro `\edvertline{ $\langle height \rangle$ }` draws a vertical line  $\langle height \rangle$  high (contrast this with `\edatright` where the size argument is half the desired height).

**\edvertdots**

```
\begin{edarrayr}
a & b & C & d & \\\
v & w & x & y & \\\
m & n & o & p & \\\
k & & L & cvb & \edvertline{4pc}
\end{edarrayr}
```

$a$	$b$	$C$	$d$	
$v$	$w$	$x$	$y$	
$m$	$n$	$o$	$p$	
$k$		$L$	$cvb$	

The `\edvertdots` macro is similar to `\edvertline` except that it produces a vertical dotted instead of a solid line.

## 14 Sectioning commands

### 14.1 Sectioning commands without line numbers or critical notes

The standard sectioning commands (`\chapter`, `\section` etc.) can be used inside numbered text. In this case, you must call them as an optional argument of `\pstart` (4.2.3 p. 16):

```
\pstart[\section{section}]
Pstart content.
\pend
```

The line which contains them will not be numbered, and you cannot add critical notes inside.

## 14.2 Sectioning commands with line numbering and critical notes

You have to use the following commands:

- `\eledchapter[⟨text⟩]{⟨critical text⟩}`,
- `\eledchapter*`,
- `\eledsection[⟨text⟩]{⟨critical text⟩}`,
- `\eledsection*`,
- `\eledsubsection[⟨text⟩]{⟨critical text⟩}`,
- `\eledsubsection*`,
- `\eledsubsubsection[⟨text⟩]{⟨critical text⟩}`,
- `\eledsubsubsection*`.

These are equivalent to the  $\LaTeX$  commands. Each individual command must be called alone in a `\pstart ... \pend`:

```
\pstart
\eledsection*{xxxx\ledsidenote{section}}
\pend
\pstart
\eledsubsection*{xxxx\ledsidenote{sub}}
\pend
\pstart
normal text
\pend
```

After the first run, you will see only the text. This is normal. After the second run, you will see the formatting. Finally, with the third run, you will see the table of contents.

For technical reasons, the page break before `\elechapter` cannot be added automatically. You have to insert it manually via `\beforeeledchapter`, which must be called outside of a numbered section.

## 14.3 Optimization

`\noeledsec` If you are not going to have any `\eledxxx` commands, then load `reledmac` with `\noeledsec` option. That will suppress the generation of unneeded `.eledsec` files, save memory, and make `reledmac` run faster.



## 15 Quotation environments

The quotation and quote environments can be used so that the same definition/note appears both inside and outside a numbered section. The typographical consequences will resemble the outside numbered sections, based on the styles of the *book* class. However, if you use a package that redefines these environments, these redefinitions won't be available inside the numbered section. You must open any quotation environments inside a `\pstart ... \pend` block, not outside. A quotation environment **MUST NOT** be opened immediately after a `\pstart` and **MUST NOT** be closed immediately before a `\pend`.

In some cases, you do not want these environments to be redefined in numbered sections. You can load the package with the option `noquotation` to prevent this redefinition.

## 16 Page breaks

### 16.1 Control page breaking

`reledmac` and `reledpar` break pages automatically. However, you may sometimes want to either force page breaks, or prevent them. The packages provide two macros:

`\ledpb`  
`\lednopb`

- `\ledpb` adds a page break.
- `\lednopb` prevents a page break, by adding one line to the current page if needed.

**These commands have effect only at the second run.**

These two commands take effect at the beginning of line in which they are called. For example, if you call `\ledpb` at l. 444, then l. 443 will be at the p.  $n$ , and the l. 444 at the p.  $n + 1$ . However, you can change the behavior and decide they will have effect after the end of the line, adding `\ledpbsetting{after}` at the beginning of your file (better: in your preamble). With the previous example, l. 444 will be on p.  $n$  and l. 445 will be on p.  $n + 1$ .

`\ledpbsetting`

If you are using `reledpar` to typeset parallel pages, you must use `\lednopb` on both sides in the two corresponding lines. This is especially important when you are using stanzas; otherwise, the pages will be out of sync.

### 16.2 Prevent page break in a long verses

`\lednopbinversettrue`

You can also decide to prevent page breaks between two lines of a long verse. To do this, use `nopbinverse` when loading package, or add `\lednopbinversettrue` in the beginning of your file (better: in your preamble).

This feature works only with verse of 2 lines and no more. It works on the third run, or on the fourth run if using `reledpar`. By default, when a long verse runs between two pages, a page break will be placed at the beginning of the verse. However, if you have added `\ledpbsetting{after}`, the page break will be placed at the end of the long verse and the page containing the long verse will have one extra line.

## 17 Miscellaneous

- `\extensionchars` When the package assembles the name of the auxiliary file for a section, it prefixes `\extensionchars` to the section number. This is initially defined to be empty, but you can add some characters to help distinguish these files if you like; what you use is likely to be system-dependent. If, for example, you said `\renewcommand{\extensionchars}{!}`, then you would get temporary files called `jobname. !1`, `jobname. !2`, etc.
- `\ifledfinal` The package can take options. The option ‘final’, which is the default is for final typesetting; this sets `\ifledfinal` to TRUE. The other option, ‘draft’, may be useful during earlier stages and sets `\ifledfinal` to FALSE.
- `\showlemma` The lemma within the text is printed via `\showlemma{lemma}`. Normally, or with the ‘final’ option, the definition of `\showlemma` is:  
`\newcommand*{\showlemma}[1]{#1}`  
 so it just produces its argument. With the ‘draft’ option it is defined as  
`\newcommand*{\showlemma}[1]{\textit{#1}}`  
 so that its argument is typeset in an italic font, which may make it easier to check that all lemmas have been treated.  
 If you would prefer some other style, you could put something like this in the preamble:
- ```
\ifledfinal\else
\renewcommand{\showlemma}[1]{\textbf{#1}}% or simply ... [1]{#1}
\fi
```

### 17.1 Known and suspected limitations

#### 17.2 ‘No room for a new’

Sometime, especially when using `reledmac` with other packages, you could obtain warning message such ‘no room for a new count’ or ‘no room for a new write’.

The first thing in order to prevent such problem is to use the options to optimize `reledmac`. For example, if you need only two series of notes, use `series={A,B}` option. Read ?? p. ?? in order to know which are there options.

However, if with these options you still have such message, here are some tricks.

‘**no room for a new count**’ is often caused by a conjunction with `biblatex`. Load `reledmac` (and `reledpar`) *before* `biblatex`.

‘**no room for a new write**’ can be caused by with multiple indexes. In this case, use `indextools` of `imakeidx` with the `splitindex` option, in order to obtain only one `.idx` file. If that does not solve your problem, you can use `morewrites` package. That should solve the problem, but  $\LaTeX$  will be slower.

If after reading and applying these advices you have still problem, contact us with a minimal working example.

### 17.3 Marginal notes

In general, `reledmac`'s system for adding marginal line numbers breaks anything that makes direct use of the  $\TeX$  insert system, which includes `marginpars`, footnotes and floats.

However, you can use both `\footnote` and the familiar footnote series notes in numbered text. A `\marginpar` in numbered text will throw away its contents and send a warning message to the terminal and log file, but will do no harm.

### 17.4 Paragraph shape

`\parshape` cannot be used within numbered text, except in a very restricted way.

`\ballast`  $\TeX$  is a three-pass system, but even after a document has been processed three times, there are some tricky situations in which the page breaks decided by  $\TeX$  never settle down. At each successive run, `reledmac` may oscillate between two different sets of page decisions. To stop this happening, should it arise, Wayne Sullivan suggested the inclusion of the quantity `\ballast`. The amount of `\ballast` will be subtracted from the penalties which apply to the page breaks calculated on the *previous* run through  $\TeX$ , thus reinforcing these breaks. So if you find your page breaks oscillating, insert `\setcounter{ballast}{100}` or some such figure, and with any luck the page breaks will settle down. Luckily, this problem does not crop up at all often.

### 17.5 Paragraphed footnotes

The restriction on explicit line-breaking in paragraphed footnotes, mentioned in a footnote ?? p. ??, and described in more detail on XII.6.3 p. 152, really is a nuisance if that is something you need to do. There are some possible solutions, described by Michael Downes, but this area remains unsatisfactory.

`\footfudgefiddle` For paragraphed footnotes  $\TeX$  has to estimate the amount of space required. If it underestimates this then the notes may get too long and run off the bottom of the text block. `\footfudgefiddle` can be increased from its default 64 (say, to 68) to increase the estimate. You have to use `\renewcommand` for this, like:  
`\renewcommand{\footfudgefiddle}{68}` Note that you must call it *before* `\Xarrangement{paragraph}` or `\arrangementX{paragraph}`.

Any settings to 'geometry' must be made before `\Xarrangement` / `\arrangementX`.

Finally, in many cases you should use `\Xmaxhnotes` and / or `\maxhnotesX` (6.11.5 p. 39), in order to define the maximum height relative to `\textheight` and not to `\vsize`, because the `\vsize` value is not the same inside and outside of the preamble.

### 17.6 Use with other packages

Because of `reledmac`'s complexity, it may not play well with other packages. In particular `reledmac` is sensitive to commands in the arguments to the `\edtext` and `\*footnote` macros (this is discussed in more detail in section VI, and in particular the discussion about `\no@expands` and `\morenoexpands`). You will have to see what works or doesn't work in your particular case.

**\morenoexpands**

You can define the macro `\morenoexpands` to modify macros that you call within `\edtext`. Because of the way `reledmac` numbers the lines the arguments to `\edtext` can be processed more than once and in some cases a macro should only be processed once. One example is the `\colorbox` macro from the `color` package, which you might use like this:

```
... \edtext{\colorbox{mycolor}{lemma}}{\Afootnote{...\colorbox{...}}}
```

If you actually try this<sup>24</sup> you will find  $\TeX$  whinging ‘Missing { inserted’, and then things start to fall apart. The trick in this case is to specify either:

```
\newcommand{\morenoexpands}{\let\colorbox=0}
```

or

```
\makeatletter
\newcommand{\morenoexpands}{\let\colorbox\@secondoftwo}
\makeatother
```

(`\@secondoftwo` is an internal  $\TeX$  macro that takes two arguments and throws away the first one.) The first incantation lets color show in both the main text and footnotes whereas the second one shows color in the main text but kills it in the lemma and footnotes. On the other hand if you use `\textcolor` instead, like

```
... \edtext{\textcolor{mycolor}{lemma}}{\Afootnote{...\textcolor{...}}}
```

there is no need to fiddle with `\morenoexpands` as the color will naturally be displayed in both the text and footnotes. To kill the color in the lemma and footnotes, though, you can do:

```
\makeatletter
\newcommand{\morenoexpands}{\let\textcolor\@secondoftwo}
\makeatother
```

It took Peter Wilson a little while to discover all this. If you run into this sort of problem you may have to spend some time experimenting before hitting on a solution.

If you want to use the option *bottom* of the `footmisc` package, you must load this package *before* the `reledmac` package.

## 17.7 Parallel typesetting

Peter Wilson has developed the `ledpar` package as an extension to `ledmac` specifically for parallel typesetting of critical texts. This also cooperates with the `babel` / `polyglossia` packages for typesetting in multiple languages. `reledpar` is the successor of the primitive `ledpar` package.

<sup>24</sup>Reported by Dirk-Jan Dekker in the CTT thread ‘Incompatibility of “color” package’ on 2003/08/28.

Peter Wilson also developed the `ledarab` package for handling parallel Arabic text in critical editions. However, this package is not maintained by Maïeul Rouquette. You should use the capabilities of a modern TeX processor, like Xe(La)TeX

## I Implementation overview

We present the `reledmac` code in roughly the order in which it is used during a run of  $\TeX$ . The order is *exactly* that in which it is read when you load The `Eledmac` package, because the same file is used to generate this manual and to generate the  $\LaTeX$  package file.

Most of what follows consists of macro definitions, but there are some commands that are executed immediately—especially at the start of the code. The documentation generally describes the code from the point of view of what happens when the macros are executed, though. As each macro is introduced, its name is printed in the margin.

After package options, we begin with the commands you use to start and stop line numbering in a section of text (Section II). Next comes the machinery for writing and reading the auxiliary file for each section that helps us count lines, and for creating list macros encoding the information from that file (Section V); this auxiliary file will be read at the start of each section, to create those list macros, and a new version of the file will be started to collect information from the body of the section.

Next are commands for marking sections of the text for footnotes (Section VI), followed by the macros that take each paragraph apart, attach the line numbers and insertions, and send the result to the vertical list (Section VII). The footnote commands (Section XII) and output routine (Section ??) finish the main part of the processing; cross-referencing (Section XXIII) and endnotes (Section XIX) complete the story.

In what follows, macros with an `@` in their name are more internal to the workings of `reledmac` than those made up just of ordinary letters, just as in `PLAIN  $\TeX$`  (see *The TeXbook*, p. 344). You are meant to be able to make free with ordinary macros, but the ‘`@`’ ones should be treated with more respect, and changed only if you are pretty sure of what you are doing.

## II Preliminaries

### II.1 Links with original `edmac`

Generally, these are the modifications to the original. `edmac` code:

- Replace as many `\def`’s by `\newcommand`’s as possible to avoid overwriting  $\LaTeX$  macros.
- Replace user-level  $\TeX$  counts by  $\LaTeX$  counters.
- Use the  $\LaTeX$  font handling mechanisms.
- Use  $\LaTeX$  messaging and file facilities.

### II.2 Package declaration

Announce the name and version of the package, which is targetted for `LaTeX2e`.

```

1 %<*code>
2 \NeedsTeXFormat{LaTeX2e}
3 \ProvidesPackage{reledmac}[2015/11/13 v2.5.0 typeset critical edition]%
4 %

```

## II.3 Package options

`\ifledfinal` Use this to remember which option is used, set and execute the options with final as the default. We use `xkeyval` in order to manage options with argument.

`\ifnocritical@`  
`\if@noeled@sec` `\RequirePackage{xkeyval}`  
`\ifnoend@` %

`\ifnofamiliar@`  
`\ifnoledgroup@` The `parledgroup` option is for `reledpar`. However, it has consequence on `reledmac` internal command. So we need to define the boolean now.

`\ifparapparatus@`  
`\ifnoquotation@` `\newif\ifparledgroup`  
`\iflednopbinverse` %

`\ifparledgroup`  
`\ifwidthliketwocolumns` And now, the options of `reledmac`.

`\ifxindy@` `\DeclareOptionX{series}[A,B,C,D,E]{\xdef\default@series{#1}}`

`\ifxindyhyperref@` `\ExecuteOptionsX{series}%`

`\ifeledmaccompat@`  
`\newif\if@noeled@sec%`  
`\DeclareOptionX{noeledsec}{\@noeled@sectrue}`

`\newif\ifnocritical@%`  
`\DeclareOptionX{nocritical}{\nocritical@true}%`

`\newif\ifnofamiliar@%`  
`\DeclareOptionX{nofamiliar}{\nofamiliar@true}%`

`\newif\ifnoledgroup@%`  
`\DeclareOptionX{noledgroup}{\noledgroup@true}%`

`\newif\ifnoend@%`  
`\DeclareOptionX{noend}{%`  
`\let\l@dend@open\@gobble%`  
`\let\l@dend@close\relax%`  
`\global\let\l@dend@stuff=\relax%`  
`\noend@true%`

`}%`  
`\newif\ifnoquotation@`  
`\DeclareOptionX{noquotation}{\noquotation@true}`

`\newif\ifledfinal`  
`\DeclareOptionX{final}{\ledfinaltrue}`  
`\DeclareOptionX{draft}{\ledfinalfalse}`

```

39 \ExecuteOptionsX{final}
40
41 \newif\ifparapparatus@
42 \DeclareOptionX{parapparatus}{\parapparatus@true}
43
44 \newif\iflednopbinverse
45 \DeclareOptionX{nopbinverse}{\lednopbinversetrue}
46
47 \newif\ifwidthliketwocolumns%
48 \DeclareOptionX{widthliketwocolumns}{\widthliketwocolumnstrue}%
49
50 \newif\ifxindy@
51 \DeclareOptionX{xindy}[eledmac-markup-attr.xdy]{%
52   \AtBeginDocument{\immediate\openout\eledmac@xindy@out=#1}%
53   \newwrite\eledmac@xindy@out%
54   \xindy@true%
55   \gdef\eledmacmarkuplocdepth{:depth 1}%
56   \AtEndDocument{\immediate\closeout\eledmac@xindy@out}%
57 }%
58
59 \newif\ifxindyhyperref@
60 \DeclareOptionX{xindy+hyperref}{%
61   \xindyhyperref@true%
62 }%
63
64 \newif\ifeledmaccompat@%
65 \DeclareOptionX{eledmac-compat}{%
66   \eledmaccompat@true%
67 }%
68 %

```

We use the starred form of `\ProcessOptionsX` which executes options in the order listed in the source file: class options, then listed package options, so a package option can override a class option with the same name. This was suggested by Dan Luecking in the `ctt` thread *Class/package option processing*, on 27 February 2004.

```

69 \ProcessOptionsX*\relax
70
71 %

```

## II.4 Loading packages

Loading package `xargs` to declare commands with optional arguments. `Etoolbox` is also used to make code clearer - for example, in dynamic command names (which can replace `\csname` etc.). Use suffix to declare commands with a starred version, `xstring` to work with strings, `ifluatex` and `ifxetex` to test if `LuaTeX` or `XYTeX` is running, and `ragged2e` to manage ragged justification for paragraphed notes.

```

72 \RequirePackage{xargs}
73 \RequirePackage{etoolbox}

```



```

74 \ifl@t@r\fmtversion{2015/10/01}
75 {}%
76 {\RequirePackage{etex}%
77 \cename reserveinserts\endcsname{32}%
78 }
79 \RequirePackage{suffix}
80 \RequirePackage{xstring}
81 \RequirePackage{ifluatex}
82 \RequirePackage{ragged2e}
83 \RequirePackage{ifxetex}%
84 %

```

## II.5 Compatibility with Lua<sub>T</sub><sub>E</sub>X

Here, we enable some primitives for Lua<sub>T</sub><sub>E</sub>X.

```

85 \ifx\directlua\undefined\else%
86 \directlua{tex.enableprimitives("",{"texdir","pardir","bodydir"})}
87 \fi
88 %

```

## II.6 Boolean flags

`\ifl@dmemoir` Define a flag for if the memoir class has been used.

```

89 \newif\ifl@dmemoir
90 \@ifclassloaded{memoir}{\l@dmemoirtrue}{\l@dmemoirfalse}
91
92 %

```

`\ifl@imakeidx` Define a flag for if the imakeidx package has been used.

```

93 \newif\ifl@imakeidx
94 \@ifpackageloaded{imakeidx}{\l@imakeidxtrue}{}%False is the default value
95 %

```

`\ifl@indextools` Define a flag for if the indextools package has been used.

```

96 \newif\ifl@indextools%
97 \@ifpackageloaded{indextools}{%
98 \l@indextoolstrue%
99 \l@imakeidxtrue%
100 \let\imki@wrindexentry\indtl@wrindexentry%
101 }{}%
102 %

```

False is the default value. We consider indextools as a variant of imakeidx. That is why we set `\ifl@imakeidx` to true. We also let `\imki@wrindexentry` to `\indtl@wrindexentry`.

`\if@RTL` The `\if@RTL` is defined by the `bidi` package, which is sometimes loaded by *polyglossia*. But we define it as well if the `bidi` package is not loaded.

```
103 \ifdef{\if@RTL}{\newif\if@RTL}
104 %
```

## II.7 Messages

All the messages are grouped here as macros. This saves  $\TeX$ 's memory when the same message is repeated and also lets them be edited easily.

`\reledmac@warning` Write a warning message.

```
105 \newcommand{\reledmac@warning}[1]{\PackageWarning{reledmac}{#1}}
106 %
```

`\reledmac@error` Write an error message.

```
107 \newcommand{\reledmac@error}[2]{\PackageError{reledmac}{#1}{#2}}
108 %
```

```
\led@err@NumberingStarted 09 \newcommand*\led@err@NumberingStarted}{%
```

```
\led@err@NumberingNotStarted 10 \reledmac@error{Numbering has already been started}{\@ehc}}
```

```
\led@err@NumberingShouldHaveStarted 11 \newcommand*\led@err@NumberingNotStarted}{%
```

```
112 \reledmac@error{Numbering was not started}{\@ehc}}
```

```
113 \newcommand*\led@err@NumberingShouldHaveStarted}{%
```

```
114 \reledmac@error{Numbering should already have been started}{\@ehc}}
```

```
115 %
```

```
\led@err@edtextoutsidestart 16 \newcommand*\led@err@edtextoutsidestart}{%
```

```
117 \reledmac@error{\string\edtext\space outside numbered paragraph (\pstart\ldots\pend)}{\@ehc}}%
```

```
118 %
```

```
\led@mess@NotesChanged 19 \newcommand*\led@mess@NotesChanged}{%
```

```
120 \typeout{reledmac reminder: }%
```

```
121 \typeout{ The number of the footnotes in this section
122 has changed since the last run.}%
```

```
123 \typeout{ You will need to run LaTeX two more times
124 before the footnote placement}%
```

```
125 \typeout{ and line numbering in this section are
126 correct.}}
```

```
127 %
```

```

\led@mess@SectionContinued28 \newcommand*{\led@mess@SectionContinued}[1]{%
129 \message{Section #1 (continuing the previous section)}}
130 %

\led@err@LineationInNumbered31 \newcommand*{\led@err@LineationInNumbered}{%
132 \reledmac@error{You can't use \string\lineation\space within
133 a numbered section}{\@ehc}}
134 %

\led@warn@BadLineation35 \newcommand*{\led@warn@BadLineation}{%
\led@warn@BadLinenummargin36 \reledmac@warning{Bad \string\lineation\space argument}}
\led@warn@BadLockdisp37 \newcommand*{\led@warn@BadLinenummargin}{%
\led@warn@BadSublockdisp38 \reledmac@warning{Bad \string\linenummargin\space argument}}
139 \newcommand*{\led@warn@BadLockdisp}{%
140 \reledmac@warning{Bad \string\lockdisp\space argument}}
141 \newcommand*{\led@warn@BadSublockdisp}{%
142 \reledmac@warning{Bad \string\sublockdisp\space argument}}
143 %

\led@warn@NoLineFile44 \newcommand*{\led@warn@NoLineFile}[1]{%
145 \reledmac@warning{Can't find line-list file #1}}
146 %

\led@warn@LineFileObsolete47 \newcommand*{\led@warn@Obsolete}[1]{%
148 \reledmac@warning{Line-list file #1 was obsolete. We have not read it.
Please run LaTeX again.}}
149 %

\led@warn@BadAdvancelineSubline50 \newcommand*{\led@warn@BadAdvancelineSubline}{%
\led@warn@BadAdvancelineLine51 \reledmac@warning{\string\advanceline\space produced a sub-line
152 number less than zero.}}
153 \newcommand*{\led@warn@BadAdvancelineLine}{%
154 \reledmac@warning{\string\advanceline\space produced a line
155 number less than zero.}}
156 %

\led@warn@BadSetline57 \newcommand*{\led@warn@BadSetline}{%
\led@warn@BadSetlinenum58 \reledmac@warning{Bad \string\setline\space argument}}
159 \newcommand*{\led@warn@BadSetlinenum}{%
160 \reledmac@warning{Bad \string\setlinenum\space argument}}
161 %

```

```

\led@err@PstartNotNumbered62 \newcommand*{\led@err@PstartNotNumbered}{%
\led@err@PstartInPstart63   \reledmac@error{\string\pstart\space must be used within a
\led@err@PendNotNumbered64   numbered section}{\@ehc}}
\led@err@PendNoPstart65 \newcommand*{\led@err@PstartInPstart}{%
\led@err@AutoparNotNumbered66 \reledmac@error{\string\pstart\space encountered while another
\led@err@NumberingWithoutPstart67 \string\pstart\space was in effect}{\@ehc}}
168 \newcommand*{\led@err@PendNotNumbered}{%
169   \reledmac@error{\string\pend\space must be used within a
170   numbered section}{\@ehc}}
171 \newcommand*{\led@err@PendNoPstart}{%
172   \reledmac@error{\string\pend\space must follow a \string\pstart}{\@ehc}}
173 \newcommand*{\led@err@AutoparNotNumbered}{%
174   \reledmac@error{\string\autopar\space must be used within a
175   numbered section}{\@ehc}}
176 \newcommand*{\led@err@NumberingWithoutPstart}{%
177   \reledmac@error{\string\beginnumbering...\string\endnumbering\space
without \string\pstart}{\@ehc}}%
178 %

\led@warn@BadAction79 \newcommand*{\led@warn@BadAction}{%
180   \reledmac@warning{Bad action code, value \next@action.}}
181 %

\led@warn@DuplicateLabel182 \newcommand*{\led@warn@DuplicateLabel}[1]{%
\led@warn@AppLabelOutEdtext183   \reledmac@warning{Duplicate definition of label `#1' on page \the\pageno
\led@warn@RefUndefined184   .}}
\led@warn@RefUndefined185 \newcommand*{\led@warn@AppLabelOutEdtext}[1]{%
186   \reledmac@warning{\string\applabel\space outside of \string\edtext\space
`#1' on page \the\pageno.}}%
187 \newcommand*{\led@warn@RefUndefined}[1]{%
188   \G@refundefinedtrue%
189   \reledmac@warning{Reference `#1' on page \the\pageno\space undefined.
Using `000'.}}
190 \newcommand*{\led@warn@pairRefUndefined}[1]{%
191   \G@refundefinedtrue%
192   \reledmac@warning{Reference `#1:start' and/or `#1:end' on page \the\
pageno\space undefined.
193   Using `??'.}}
194 %

\led@warn@NoMarginpars95 \newcommand*{\led@warn@NoMarginpars}{%
196   \reledmac@warning{You can't use \string\marginpar\space in numbered text
}}
197 %

```

```

\led@warn@BadSidenotemargin 98 \newcommand*{\led@warn@BadSidenotemargin}{%
199 \reledmac@warning{Bad \string\sidenotemmargin\space argument}}
200 %

\led@warn@NoIndexFile 01 \newcommand*{\led@warn@NoIndexFile}[1]{%
202 \reledmac@warning{Undefined index file #1}}
203 %

\led@warn@SeriesStillExist 04 \newcommand{\led@warn@SeriesStillExist}[1]{%
205 \reledmac@warning{Series #1 is still existing !}}%
206 }%
207 %

\led@err@ManySidenotes 08 \newcommand{\led@err@ManySidenotes}{%
\led@err@ManyLeftnotes 09 \ifledRcol{%
\led@err@ManyRightnotes 10 \reledmac@warning{\itemcount@\space sidenotes on line \the\line@numR\
space p. \the\page@numR}%
211 \else%
212 \reledmac@warning{\itemcount@\space sidenotes on line \the\line@num\
space p. \the\page@num}%
213 \fi%
214 }%
215 \newcommand{\led@err@ManyLeftnotes}{%
216 \ifledRcol{%
217 \reledmac@warning{\itemcount@\space leftnotes on line \the\line@numR\
space p. \the\page@numR}%
218 \else%
219 \reledmac@warning{\itemcount@\space leftnotes on line \the\line@num\
space p. \the\page@num}%
220 \fi%
221 }%
222 \newcommand{\led@err@ManyRightnotes}{%
223 \ifledRcol{%
224 \reledmac@warning{\itemcount@\space rightnotes on line \the\line@numR\
space p. \the\page@numR}%
225 \else%
226 \reledmac@warning{\itemcount@\space rightnotes on line \the\line@num\
space p. \the\page@num}%
227 \fi%
228 }%
229 %

\led@err@TooManyColumns 30 \newcommand*{\led@err@TooManyColumns}{%
\led@err@UnequalColumns 31 \reledmac@error{Too many columns}{\@ehc}}
\led@err@LowStartColumn 32 \newcommand*{\led@err@UnequalColumns}{%
\led@err@HighEndColumn
\led@err@ReverseColumns

```

```

233 \reledmac@error{Number of columns is not equal to the number
234         in the previous row (or \protect\ \space forgotten?)}\@ehc}}
235 @ehc}}
236 \newcommand*\led@err@LowStartColumn}{%
237 \reledmac@error{Start column is too low}\@ehc}}
238 \newcommand*\led@err@HighEndColumn}{%
239 \reledmac@error{End column is too high}\@ehc}}
240 \newcommand*\led@err@ReverseColumns}{%
241 \reledmac@error{Start column is greater than end column}\@ehc}}
242 %

```

```

\led@err@EdtextWithoutFootnote\newcommand{\led@err@EdtextWithoutFootnote}{%
243 \reledmac@error{edtext without Xfootnote. Check syntax.}\@ehc}%
244 }%
245 %

```

```

\led@err@FootnoteWithoutEdtext\newcommand{\led@err@FootnoteWithoutEdtext}{%
247 \reledmac@error{Xfootnote without edtext. Check syntax.}\@ehc}%
248 }%
249 %

```

```

\led@error@ImakeidxAfterEledmac\newcommand{\led@error@ImakeidxAfterEledmac}{%
251 \reledmac@error{Imakeidx must be loaded before reledmac.}\@ehc}%
252 }%
253 %

```

```

\led@error@IndextoolsAfterEledmac\newcommand{\led@error@IndextoolsAfterEledmac}{%
255 \reledmac@error{Indextools must be loaded before reledmac.}\@ehc}%
256 }%
257 %

```

```

\led@error@fail@patch@@makecol\newcommand{\led@error@fail@patch@@makecol}{%
259 \reledmac@error{Fail to patch \string\@makecol\space command.}\@ehc}%
260 }%
261 %

```

```

\led@error@fail@patch@@reinserts\newcommand{\led@error@fail@patch@@reinserts}{%
263 \reledmac@error{Fail to patch \string\@reinserts\space command.}\@ehc}%
264 }%
265 %

```

```

r@fail@patch@@doclearpage 66 \newcommand{\led@error@fail@patch@@doclearpage}{%
267 \reledmac@error{Fail to patch \string\@doclearpage\space command.}\@ehc}
%
268 }%
269 %

```

```

r@fail@patch@@iiiminipage 70 \newcommand{\led@error@fail@patch@@iiiminipage}{%
271 \reledmac@error{Fail to patch \string\@iiiminipage\space command.}\@ehc}
%
272 }%
273 %

```

```

r@fail@patch@endminipage 74 \newcommand{\led@error@fail@patch@endminipage}{%
275 \reledmac@error{Fail to patch \string@endminipage\space command.}\@ehc}%
276 }%
277 %

```

## II.8 Gobbling

Here, we define some commands which gobble their arguments.

```

\@gobblethree 78 \providecommand*\@gobblethree}[3]{}
\@gobblefour 79 \providecommand*\@gobblefour}[4]{}
\@gobblefive 80 \providecommand*\@gobblefive}[5]{}
281 %

```

## II.9 Miscellaneous commands

`\showlemma` `\showlemma{⟨lemma⟩}` typesets the lemma text in the body. It depends on the option.

```

282 \ifledfinal
283 \newcommand*\showlemma[1]{#1}
284 \else
285 \newcommand*\showlemma[1]{\underline{#1}}
286 \fi
287
288 %

```

`\linenumberlist` The code for the `\linenumberlist` mechanism was given to Peter Wilson by Wayne Sullivan on 2004/02/11.

Initialize it as `\empty`.

```

289 \let\linenumberlist=\empty
290
291 %

```

`\@l@tempcnta` In imitation of  $\TeX$ , we create a couple of scratch counters.  
`\@l@tempcntb`  $\TeX$  already defines `\@tempcnta` and `\@tempcntb` but Peter Wilson found in the past that it can be dangerous to use these (for example one of the AMS packages did something nasty to the `ccaption` package's use of one of these).

```
292 \newcount\@l@tempcnta \newcount\@l@tempcntb
293 %
```

## II.10 Prepare reledpar

`\ifnumberingR` In preparation for the `reledpar` package, these are related to the 'right' text of parallel texts (when `\ifl@dpairing` is TRUE). They are explained in the `eledpar` manual.

```
\ifl@dpairing
\ifl@dpaging
\l@dpagingtrue
\l@dpagingfalse
\ifl@dprintingpages
\l@dprintingpagestrue
\l@dprintingpagesfalse
\ifl@dprintingcolumns
\l@dprintingcolumnstrue
\l@dprintingcolumnsfalse
\l@dpairingtrue
\l@dpairingfalse
\ifpst@rtedL
\pst@rtedLtrue
\pst@rtedLfalse
\l@dnumpstartsL
\ifledRcol
\ifledRcol@
\ifXnote@
```

`\newif\ifl@dpairing`  
`\newif\ifl@dpaging%`  
`\newif\ifl@dprintingpages%`  
`\newif\ifl@dprintingcolumns%`  
`\newif\ifpst@rtedL`  
`\newcount\l@dnumpstartsL`  
`%`  
`\ifledRcol` is set to true in the Rightside environnement. It must be not confused with `\ifledRcol@` which is set to true when a right line is processed, in `\Pages` or `\Columns`.  
`\newif\ifledRcol`  
`\newif\ifledRcol@`  
`%`  
The `\ifnumberingR` flag is set to true if we're within a right text numbered section.  
`\newif\ifnumberingR`  
`%`

The `\ifXnote@` macro is set to true when we are typesetting a critical footnote.

```
306 \newif\ifXnote@%
307 %
```

## III Sectioning commands

`\section@num` You use `\beginnumbering` and `\endnumbering` to begin and end a line-numbered section of the text; the pair of commands may be used as many times as you like within one document to start and end multiple, separately line-numbered sections.  $\TeX$  will maintain and display a 'section number' as a count named `\section@num` that counts how many `\beginnumbering` and `\resumenumbering` commands have appeared; it need not be related to the logical divisions of your text.



`\extensionchars` Each section will read and write an associated ‘line-list file’, containing information used to do the numbering; the file will be called `\jobname.nn`, where `nn` is the section number. However, you may direct that an extra string be added before the `nn` in that filename, in order to distinguish these temporary files from others: that string is called `\extensionchars`. Initially it’s empty, since different operating systems have greatly varying ideas about what characters are permitted in file names. So `\renewcommand{\extensionchars}{-}` gives temporary files called `jobname.-1`, `jobname.-2`, etc.

```

308 \newcount\section@num
309 \section@num=0
310 \let\extensionchars=\empty
311 %

```

`\ifnumbering` The `\ifnumbering` flag is set to true if we are within a numbered section (that is, between `\beginnumbering` and `\endnumbering`). You can use `\ifnumbering` in your own code to check whether you are in a numbered section, but do not change the flag’s value.

```

312 \newif\ifnumbering
313 %

```

`\beginnumbering` `\initnumbering@reg` `\beginnumbering` begins a section of numbered text. When it is executed we increment the section number, initialize our counters, send a message to your terminal, and call macros to start the lineation machinery and endnote files.

The initializations here are trickier than they look. `\line@list@stuff` will use all of the counters that are zeroed here when it assembles the line-list and other lists of information about the lineation. But it will do all of this locally and within a group, and when it is done the lists will remain but the counters will return to zero. Those same counters will then be used as we process the text of this section, but the assignments will be made globally. These initializations actually apply to both uses, though in all other respects there should be no direct interaction between the use of these counters and variables in the two processing steps. For parallel processing :

- zero `\l@dnumpst@startsL` — the number of chunks to be processed.
- set `\ifpst@rtedL` to FALSE.

```

314 \newcommand*{\beginnumbering}{%
315   \ifnumbering
316     \led@err@NumberingStarted
317   \endnumbering
318 \fi
319 \global\numberingtrue
320 \global\advance\section@num \@ne
321 \initnumbering@reg
322 \message{Section \the\section@num }%
323 \line@list@stuff{\jobname.\extensionchars\the\section@num}%

```

```

324 \l@dend@stuff
325 \setcounter{pstart}{1}
326 \ifl@dpairing
327   \global\l@dnumpstartsL \z@
328   \global\pst@rtedLfalse
329 %

```

The tools for section's title commands are called:

- Define an empty list of pstart number where sectioning commands are called.
- Input auxiliary file with the description of section titles.
- Open the same auxiliary file to write in.

```

330 \else
331   \begingroup
332   \global\@afterindenttrue%In order to reestablish normal feature if the \
  begingroup was not here
333   \initnumbering@quote
334   \ifwidthliketwocolumns%
335     \csuse{setwidthliketwocolumns@\columns@position}%
336     \csuse{setpositionliketwocolumns@\columns@position}%
337   \fi%
338 \fi
339 \gdef\eled@sections@{ }%
340 \if@noeled@sec\else%
341   \makeatletter\inputIfFileExists{\jobname.eledsec\the\section@num}{-}{-}\
  makeatother%
342   \immediate\openout\eled@sectioning@out=\jobname.eledsec\the\section@num
  \relax%
343 \fi%
344 }
345 \newcommand*{\initnumbering@reg}{%
346   \global\pst@rtedLfalse
347   \global\l@dnumpstartsL \z@
348   \global\absline@num \z@
349   \gdef\normal@page@break{}
350   \gdef\l@prev@pb{}
351   \gdef\l@prev@nopb{}
352   \global\line@num \z@
353   \global\subline@num \z@
354   \global\@lock \z@
355   \global\sub@lock \z@
356   \global\sublines@false
357   \global\let\next@page@num=\relax
358   \global\let\sub@change=\relax
359   \resetprevline@
360   \resetprevpage@num
361 }
362

```

363 %

`\endnumbering` `\endnumbering` must follow the last text for a numbered section. It takes care of notifying you when changes have been noted in the input that require running the file through again to move everything to the right place.

```

364 \def\endnumbering{%
365   \ifnumbering
366     \global\numberingfalse
367     \normal@pars
368     \ifnum\l@dnumstartsl=0%
369       \led@err@NumberingWithoutPstart%
370     \fi%
371     \ifl@dpairing
372       \global\pst@rtedLfalse
373     \else
374       \ifx\insertlines@list\empty\else
375         \global\noteschanged@true
376       \fi
377       \ifx\line@list\empty\else
378         \global\noteschanged@true
379       \fi
380     \fi
381     \ifnoteschanged@
382       \led@mess@NotesChanged
383     \fi
384   \else
385     \led@err@NumberingNotStarted
386   \fi
387   \autoparfalse
388   \if@noeled@sec\else%
389     \immediate\closeout\eled@sectioning@out%
390   \fi%
391   \ifl@dpairing\else
392     \global\l@dnumstartsl=\z@%
393   \endgroup
394   \fi
395 }
396 %

```

`\pausenumbering` The `\pausenumbering` macro is just the same as `\endnumbering`, but with the `\resumenumbering` `\ifnumbering` flag set to true, to show that numbering continues across the gap.<sup>25</sup>

```

397 \newcommand{\pausenumbering}{%
398   \ifautopar\global\autopar@pausetrue\fi%
399   \endnumbering\global\numberingtrue}
400 %

```

<sup>25</sup>Peter Wilson's thanks to Wayne Sullivan, who suggested the idea behind these macros.

The `\resumenumbering` macro is a bit more involved, but not much. It does most of the same things as `\beginnumbering`, but without resetting the various counters. Note that no check is made by `\resumenumbering` to ensure that `\pausenumbering` was actually invoked.

```

401 \newcommand*{\resumenumbering}{%
402   \ifnumbering
403     \ifautopar@pause\autopar\fi
404     \global\pst@rtedLtrue
405     \global\advance\section@num \@ne
406     \led@mess@SectionContinued{\the\section@num}%
407     \line@list@stuff{\jobname.\extensionchars\the\section@num}%
408     \l@dend@stuff
409     \ifl@dpairing\else%
410       \begingroup%
411       \initnumbering@quote%
412       \ifwidthliketwocolumns%
413         \csuse{setwidthliketwocolumns@\columns@position}%
414         \csuse{setpositionliketwocolumns@\columns@position}%
415       \fi%
416     \fi%
417   \else
418     \led@err@NumberingShouldHaveStarted
419     \endnumbering
420     \beginnumbering
421   \fi}
422
423
424 %

```

## IV List macros

We will make heavy use of lists of information, which will be built up and taken apart by the following macros; they are adapted from *The TeXbook*, pp. 378–379, which discusses their use in more detail.

These macros consume a large amount of the run-time of this code. We intend to replace them in a future version, and in anticipation of doing so have defined their interface in such a way that it is not sensitive to details of the underlying code.

The historical list tools of `ledmac` are kept, because in many cause there are more useful than `etoolbox`'s lists. They allows to get and delete the first element of a list in one operation. They also expands the items add to the list.

However, `etoolbox`'s lists are more useful to loop on them. Consequently, depending of what we need, we use one or either.

It could be nice to unify them to the  $\LaTeX$ 3 list, however such migration would take quite time with some risk of error, for a gain which will be minor.

`\list@create` The `\list@create` macro creates a new list. This macro does not do anything beyond initializing an empty list macro.

```

425 \newcommand*{\list@create}[1]{%
426   \global\let#1=\empty%
427 }%
428 %

```

**\list@clear** The `\list@clear` macro just initializes a list to the empty list; it is no different from `\list@create` in its effect, but it is in its semantic .

```

429 \newcommand*{\list@clear}[1]{%
430   \global\let#1=\empty%
431 }
432 %

```

**\xright@appenditem** `\xright@appenditem` expands an item and appends it to the right end of a list macro.  
**\led@toksa** We want the expansion because we will often be using this to store the current value  
**\led@toksb** of a counter. `\xright@appenditem` creates global control sequences, like `\xdef`, and uses two temporary token-list registers, `\@toksa` and `\@toksb`.

```

433 \newtoks\led@toksa \newtoks\led@toksb
434 \global\led@toksa={\}
435 \long\def\xright@appenditem#1\to#2{%
436   \global\led@toksb=\expandafter{#2}%
437   \xdef#2{\the\led@toksb\the\led@toksa\expandafter{#1}}%
438   \global\led@toksb={}}
439 %

```

**\xleft@appenditem** `\xleft@appenditem` expands an item and appends it to the left end of a list macro; it is otherwise identical to `\xright@appenditem`.

```

440 \long\def\xleft@appenditem#1\to#2{%
441   \global\led@toksb=\expandafter{#2}%
442   \xdef#2{\the\led@toksa\expandafter{#1}\the\led@toksb}%
443   \global\led@toksb={}}
444 %

```

**\gl@p** The `\gl@p` macro removes the leftmost item from a list and places it in a control sequence. You type `\gl@p\l\to\z` (where `\l` is the list macro, and `\z` receives the left item). `\l` is assumed nonempty: use `\ifx\l\empty` to test for an empty `\l`. The control sequences created by `\gl@p` are all global.

```

445 \def\gl@p#1\to#2{\expandafter\gl@poff#1\gl@poff#1#2}
446 \long\def\gl@poff\#1#2\gl@poff#3#4{\gdef#4{#1}\gdef#3{#2}}
447
448 %

```

## V Line counting

### V.1 Choosing the system of lineation

Line number can be reset at each section (default) ; at each page ; at each pstart. Here we define internal codes for these systems and the macros.

`\ifbypstart@` The `\ifbypage@` and `\ifbypstart@` flag specify the current lineation system:

`\bypstart@true`      • line-of-page: `bypstart@ = false` and `bypage@ = true`.

`\bypstart@false`    • line-of-pstart: `bypstart@ = true` and `bypage@ = false`.

`\ifbypage@`      • line-of-pstart: `bypstart@ = true` and `bypage@ = false`.

`\bypage@true`      `reledmac` will use the line-of-section system unless instructed otherwise.

`\bypage@false`

```
449 \newif\ifbypage@
450 \newif\ifbypstart@
451 %
```

The `\ifbypage@R` and `\ifbypstart@R` flag specify the current lineation for right side in case of using `reledpar`. They are now defined because they are used in some specific code. `reledpar` will use the line-of-section system unless instructed otherwise.

```
\ifbypage@R52 \newif\ifbypage@R
\ifbypstart@R53 \newif\ifbypstart@R
454 %
```

`\lineation` `\lineation{<word>}` is the macro you use to select the lineation system. Its argument is a string: either page, section or pstart.

```
455 \newcommand*{\lineation}[1]{%
456 %
```

We can't change the lineation system inside numbering section.

```
457 \ifnumbering
458 \led@err@LineationInNumbered
459 \else
460 %
```

If the argument is page.

```
461 \def\@tempa{#1}\def\@tempb{page}%
462 \ifx\@tempa\@tempb
463 \global\bypage@true
464 \global\bypstart@false
465 \unless\ifnocritical@%
466 \Xpstart[] [false]%
467 \fi%
468 %
```

If the argument is pstart.

```

469 \else
470 \def\@tempb{pstart}%
471 \ifx\@tempa\@tempb
472 \global\bypage@false
473 \global\bystart@true
474 \unless\ifnocritical@%
475 \Xpstart%
476 \fi%
477 %

```

And finally, if the argument is section (default).

```

478 \else
479 \def\@tempb{section}
480 \ifx\@tempa\@tempb
481 \global\bypage@false
482 \global\bystart@false
483 \unless\ifnocritical@%
484 \Xpstart[] [false]%
485 \fi%
486 %

```

In other case, it is an error.

```

487 \else
488 \led@warn@BadLineation
489 \fi
490 \fi
491 \fi
492 \fi}}
493 %

```

## V.2 Line number margin

`\linenummargin` `\linenummargin{⟨word⟩}` specify which margin line numbers are in; it takes one argument, a string, which value can be left ; right; inner or outer.

`\line@margin` The selection is recorded in the count `\line@margin`: 0 for left, 1 for right, 2 for outer, and 3 for inner.

`\l@dgetline@margin`

```

494 \newcount\line@margin
495
496 \newcommand*{\linenummargin}[1]{%
497 \l@dgetline@margin{#1}%
498 \ifnum\@l@tempcntb>\m@ne
499 \ifledRcol
500 \global\line@marginR=\@l@tempcntb
501 \led@warn@setting@in@rightside{\linenummargin}%
502 \else
503 \global\line@margin=\@l@tempcntb
504 \fi
505 \fi}}

```

```

506 \newcommand*{\l@getline@margin}[1]{%
507   \def\@tempa{#1}\def\@tempb{left}%
508   \ifx\@tempa\@tempb
509     \l@dtempcntb \z@
510   \else
511     \def\@tempb{right}%
512     \ifx\@tempa\@tempb
513       \l@dtempcntb \@ne
514     \else
515       \def\@tempb{outer}%
516       \ifx\@tempa\@tempb
517         \l@dtempcntb \tw@
518       \else
519         \def\@tempb{inner}%
520         \ifx\@tempa\@tempb
521           \l@dtempcntb \thr@@
522         \else
523           \led@warn@BadLinenummargin
524           \l@dtempcntb \m@ne
525         \fi
526       \fi
527     \fi
528   \fi
529 \fi}
530
531 %

```

### V.3 Line number initialization and increment

`\c@firstlinenum`  
`\c@linenumincrement`

The following counters tell reledmac which lines should be printed with line numbers. `firstlinenum` is the number of the first line in each section that gets a number; `linenumincrement` is the difference between successive numbered lines. The initial values of these counters produce labels on lines 5, 10, 15, etc. `linenumincrement` must be at least 1.

```

532 \newcounter{firstlinenum}
533 \setcounter{firstlinenum}{5}
534 \newcounter{linenumincrement}
535 \setcounter{linenumincrement}{5}
536 %

```

`\c@firstsublinenum`  
`\c@sublinenumincrement`

The following parameters are just like `firstlinenum` and `linenumincrement`, but for sub-line numbers. `sublinenumincrement` must be at least 1.

```

537 \newcounter{firstsublinenum}
538 \setcounter{firstsublinenum}{5}
539 \newcounter{sublinenumincrement}
540 \setcounter{sublinenumincrement}{5}
541
542 %

```



`\firstlinenum` These macros can be used to set the corresponding counters.

`\linenumincrement`

`\firstsublinenum`

`\sublinenumincrement`

```

543 \newcommand*\firstlinenum[1]{%
544   \ifledRcol%
545     \setcounter{firstlinenumR}{#1}%
546     \led@warn@setting@in@rightside{\firstlinenum}
547   \else%
548     \setcounter{firstlinenum}{#1}%
549   \fi%
550 }
551 \newcommand*\linenumincrement[1]{%
552   \ifledRcol%
553     \setcounter{linenumincrementR}{#1}%
554     \led@warn@setting@in@rightside{\linenumincrement}
555   \else%
556     \setcounter{linenumincrement}{#1}%
557   \fi%
558 }
559 \newcommand*\firstsublinenum[1]{%
560   \ifledRcol%
561     \setcounter{firstsublinenumR}{#1}%
562     \led@warn@setting@in@rightside{\firstsublinenum}
563   \else%
564     \setcounter{firstsublinenum}{#1}%
565   \fi%
566 }
567 \newcommand*\sublinenumincrement[1]{%
568   \ifledRcol%
569     \setcounter{sublinenumincrementR}{#1}%
570     \led@warn@setting@in@rightside{\sublinenumincrement}
571   \else%
572     \setcounter{sublinenumincrement}{#1}%
573   \fi%
574 }
575 }
576 %
577 %

```

## V.4 Line number locking

`\lockdisp` When line locking is being used, the `\lockdisp{⟨word⟩}` macro specifies whether a  
`\lock@disp` line number—if one is due to appear—should be printed on the first printed line or on  
`\l@dgetlock@disp` the last, or by all of them. Its argument is a word, either `first`, `last`, or `all`. Initially,  
it is set to `first`.

`\lock@disp` encodes the selection: 0 for first, 1 for last, 2 for all.

```

578 \newcount\lock@disp
579 \newcommand{\lockdisp}[1]{%
580   \l@dgetlock@disp{#1}%
581   \ifnum\l@dttempcntb>\m@ne

```

```

582 \global\lock@disp=\@l@dtmptcntb
583 \else
584 \led@warn@BadLockdisp
585 \fi}}
586 \newcommand*{\l@dgetlock@disp}[1]{
587 \def\@tempa{#1}\def\@tempb{first}%
588 \ifx\@tempa\@tempb
589 \@l@dtmptcntb \z@
590 \else
591 \def\@tempb{last}%
592 \ifx\@tempa\@tempb
593 \@l@dtmptcntb \@ne
594 \else
595 \def\@tempb{all}%
596 \ifx\@tempa\@tempb
597 \@l@dtmptcntb \tw@
598 \else
599 \@l@dtmptcntb \m@ne
600 \fi
601 \fi
602 \fi}
603
604 %

```

`\sublockdisp` The same questions about where to print the line number apply to sub-lines, and these are the analogous macros for dealing with the problem.

```

605 \newcount\sublock@disp
606 \newcommand{\sublockdisp}[1]{%
607 \l@dgetlock@disp{#1}%
608 \ifnum\@l@dtmptcntb>\m@ne
609 \global\sublock@disp=\@l@dtmptcntb
610 \else
611 \led@warn@BadSublockdisp
612 \fi}}
613
614 %

```

## V.5 Line number style

`\linenumberstyle` We provide a mechanism for using different representations of the line numbers, not just the normal arabic.

`\linenumrep` NOTE: In v0.7 `\linenumrep` and `\sublinenumrep` replaced the internal `\linenumr@p`

`\linenumr@p` and `\sublinenumr@p`.

`\sublinenumberstyle` `\linenumberstyle` and `\sublinenumberstyle` are user level macros for setting the number representation (`\linenumrep` and `\sublinenumrep`) for line and sub-line numbers.

`\sublinenumrep`

`\sublinenumr@p`

```

615 \newcommand*{\linenumberstyle}[1]{%

```

```

616 \def\linenumrep##1{\@nameuse{@#1}{##1}}
617 \newcommand*\sublinenumstyle}[1]{%
618 \def\sublinenumrep##1{\@nameuse{@#1}{##1}}
619 %

```

Initialise the number styles to arabic.

```

620 \linenumstyle{arabic}
621 \let\linenumr@p\linenumrep
622 \sublinenumstyle{arabic}
623 \let\sublinumr@p\sublinenumrep
624
625 %

```

## V.6 Line number printing

`\leftlinenum` and `\rightlinenum` are the macros that are called to print marginal line numbers on a page, for left- and right-hand margins respectively. They are made easy to access and change, since you may want to change the styling in some way. These standard versions illustrate the general sort of thing that will be needed; they are based on the `\leftheadline` macro in *The TeXbook*, p. 416.

Whatever these macros output gets printed in a box that will be put into the appropriate margin without any space between it and the line of text. You will generally want a kern between a line number and the text, and `\linenumsep` is provided as a standard way of storing its size. Line numbers are usually printed in a smaller font, and `\numlabfont` is provided as a standard name for that font. When called, these macros will be executed within a group, so font changes and the like will remain local.

`\ledlinenum` typesets the line (and subtitle) number.

The original `\numlabfont` specification is equivalent to the  $\TeX$  `\scriptsize` for a 10pt document.

```

626 \newlength{\linenumsep}
627 \setlength{\linenumsep}{1pc}
628 \newcommand*\numlabfont{\normalfont\scriptsize}
629 \newcommand*\ledlinenum{%
630 \bgroup%
631 \ifluatex%
632 \textdir TLT%
633 \fi%
634 \numlabfont\linenumrep{\line@num}%
635 \ifsublines@
636 \ifnum\subline@num>0\relax
637 \unskip%
638 \Xsublinesep@side%
639 \sublinenumrep{\subline@num}%
640 \fi
641 \fi%
642 \egroup%
643 }%

```

```

644 \newcommand*{\leftlinenum}{%
645   \ledlinenum
646   \kern\linenumsep}
647 \newcommand*{\rightlinenum}{%
648   \kern\linenumsep
649   \ledlinenum}
650
651 %
652 %

```

## V.7 Line number counters and lists

Footnote references using line numbers rather than symbols can't be generated in one pass, because we do not know the line numbers till we ship out the pages. It would be possible if footnotes were never keyed to more than one line; but some footnotes gloss passages that may run for several lines, and they must be tied to the first line of the passage glossed. And even one-line passages require two passes if we want line-per-page numbering rather than line-per-section numbering.

So we run  $\text{\LaTeX}$  over the text several times, and each time save information about page and line numbers in a 'line-list file' to be used during the next pass. At the start of each section—whenever `\beginnumbering` is executed—the line-list file for that section is read, and the information from it is encoded into a few list macros.

We need first to define the different line numbers that are involved in these macros, and the associated counters.

**`\line@num`** The count `\line@num` stores the line number that is used in marginal line numbering and in notes: counting either by section, page or pstart, depending on your choice for this section. This may be qualified by `\subline@num`.

```

653 \newcount\line@num
654 %

```

**`\subline@num`** The count `\subline@num` stores a sub-line number that qualifies `\line@num`. For example, line 10 might have sub-line numbers 1, 2 and 3, which might be printed as lines 10.1, 10.2, 10.3.

```

655 \newcount\subline@num
656 %

```

**`\ifsublines@`** We maintain an associated flag, `\ifsublines@`, to tell us whether we're within a sub-line range or not.

**`\sublines@true`** You may wonder why we do not just use the value of `\subline@num` to determine this—treating anything greater than 0 as an indication that sub-lineation is on. We need a separate flag because sub-lineation can be used together with line-number locking in odd ways: several pieces of a logical line might be interrupted by pieces of sub-lineated text, and those sub-line numbers should not return to zero until the next change in the major line number. This is common in the typesetting of English Renaissance verse

**`\sublines@false`**

drama, in which stage directions are given sub-line numbers: a single line of verse may be interrupted by several stage directions.

```
657 \newif\ifsublines@
658 %
```

**\absline@num** The count `\absline@num` stores the absolute number of lines since the start of the section: that is, the number we have actually printed, no matter what numbers we attached to them. This value is never printed on an output page, though `\line@num` will often be equal to it. It is used internally to keep track of where notes are to appear and where new pages start: using this value rather than `\line@num` is a lot simpler, because it does not depend on the lineation system in use.

```
659 \newcount\absline@num
660 %
```

We will call `\absline@num` numbers “absolute” numbers, and `\line@num` and `\subline@num` numbers “visible” numbers.

## V.8 Line number locking counter

**\@lock** The counts `\@lock` and `\sub@lock` tell us the state of line-number and sub-line-number locking. 0 means we are not within a locked set of lines; 1 means we are at the first line in the set; 2, at some intermediate line; and 3, at the last line.

```
661 \newcount\@lock
662 \newcount\sub@lock
663 %
```

## V.9 Line number associated to lemma

**\line@list** Now we can define the list macros that will be created from the line-list file. We will maintain the following lists:

**\insertlines@list**  
**\actionlines@list**  
**\actions@list**

- `\line@list`: the page and line numbers for every lemma marked by `\edtext`. There are seven pieces of information, separated by vertical bars:

1. the starting page,
2. line, and
3. sub-line numbers, followed by the
4. ending page,
5. line, and
6. sub-line numbers, and then the
7. font specifier for the lemma.

These line numbers are all visible numbers. The font specifier is a set of four codes for font encoding, family, series, and shape, separated by / characters. Thus a lemma that started on page 23, line 35 and went on until page 24, line 3 (with no sub-line numbering), and was typeset in a normal roman font would have a line

list entry like this:

```
23|35|0|24|3|0|0T1/cmr/m/n.
```

There is one item in this list for every lemma marked by `\edtext`, even if there are several notes to that lemma, or no notes at all. `\edtext` reads the data in this list, making it available for use in the text of notes.

- `\insertlines@list`: the line numbers of lines that have footnotes or other insertions. These are the absolute numbers where the corresponding lemmas begin. This list contains one entry for every footnote in the section; one lemma may contribute no footnotes or many footnotes. This list is used by `\add@inserts` within `\do@line`, to tell it where to insert notes.
- `\actionlines@list`: a list of absolute line numbers at which we are to perform special actions; these actions are specified by the `\actions@list` list defined below.
- `\actions@list`: action codes corresponding to the line numbers in `\actionlines@list`. These codes tell `reledmac` what action it is supposed to take at each of these lines. One action, the page-start action, is generated behind the scenes by `reledmac` itself; the others, for specifying sub-lineation, line-number locking, and line-number alteration, are generated only by explicit commands in your input file. The page-start and line-number-alteration actions require arguments, to specify the new values for the page or line numbers; instead of storing those arguments in another list, we have chosen the action-code values so that they can encode both the action and the argument in these cases. Action codes greater than  $-1000$  are page-start actions, and the code value is the page number; action codes less than  $-5000$  specify line numbers, and the code value is a transformed version of the line number; action codes between these two values specify other actions which require no argument.

Here is the full list of action codes and their meanings:

Any number greater than  $-1000$  is a page-start action: the line number associated with it is the first line on a page, and the action number is the page number. (The cutoff of  $-1000$  is chosen because negative page-number values are used by some macro packages; we assume that page-number values less than  $-1000$  are not common.) Page-start action codes are added to the list by the `\page@action` macro, which is (indirectly) triggered by the workings of the `\page@start` macro; that macro should always be called in the output routine, just before the page contents are assembled. `Eledmac` calls it in `\pagecontents`.

The action code  $-1001$  specifies the start of sub-lineation: meaning that, starting with the next line, we should be advancing `\subline@num` at each start-of-line command, rather than `\line@num`.

The action code  $-1002$  specifies the end of sub-lineation. At the next start-of-line, we should clear the sub-line counter and start advancing the line number. The action codes for starting and ending sub-lineation are added to the list by the `\sub@action` macro, as called to implement the `\startsub` and `\endsub` macros.

The action code `-1003` specifies the start of line number locking. After the number for the current line is computed, it will remain at that value through the next line that has an action code to end locking.

The action code `-1004` specifies the end of line number locking.

The action code `-1005` specifies the start of sub-line number locking. After the number for the current sub-line is computed, it will remain at that value through the next sub-line that has an action code to end locking.

The action code `-1006` specifies the end of sub-line number locking.

The four action codes for line and sub-line number locking are added to the list by the `\do@lockon` and `\do@lockoff` macros, as called to implement the `\startlock` and `\endlock` macros.

An action code of `-5000` or less sets the current visible line number (either the line number or the sub-line number, whichever is currently being advanced) to a specific positive value. The value of the code is  $-(5000 + n)$ , where  $n$  is the value (always  $\geq 0$ ) assigned to the current line number. Action codes of this type are added to the list by the `\set@line@action` macro, as called to implement the `\advanceline` and `\setline` macros: this action only occurs when the user has specified some change to the line numbers using those macros. Normally `reledmac` computes the visible line numbers from the absolute line numbers with reference to the other action codes and the settings they invoke; it does not require an entry in the action-code list for every line.

Here are the commands to create these lists:

```

664 \list@create{\line@list}
665 \list@create{\insertlines@list}
666 \list@create{\actionlines@list}
667 \list@create{\actions@list}
668
669 %

```

`\page@num` We will need some counts while we read the line-list, for the page number and the ending  
`\endpage@num` page, line, and sub-line numbers. Some of these will be used again later on, when we  
`\endline@num` are acting on the data in our list macros.

```

\endsubline@num
670 \newcount\page@num
671 \newcount\endpage@num
672 \newcount\endline@num
673 \newcount\endsubline@num
674 %

```

`\ifnoteschanged@` If the number of the footnotes in a section is different from what it was during the last  
`\noteschanged@true` run, or if this is the very first time you've run `ℒTEX`, on this file, the information from  
`\noteschanged@false` the line-list used to place the notes will be wrong, and some notes will probably be misplaced. When this happens, we prefer to give a single error message for the whole section rather than messages at every point where we notice the problem, because we do

not really know where in the section notes were added or removed, and the solution in any case is simply to run  $\TeX$  two more times; there is no fix needed to the document. The `\ifnoteschanged@` flag is set if such a change in the number of notes is discovered at any point.

```
675 \newif\ifnoteschanged@
676 %
```

**`\resetprevline@`** Inside the apparatus, at each note, the line number is stored in a macro called `\prevlineX`, where  $X$  is the letter of the current series. This macro is called when using `\Xnumberonlyfirstinline`. This macro must be reset at the same time as the line number. The `\resetprevline@` does this resetting for every series.

```
\resetprevline@77 \newcommand*{\resetprevline@}{%
678   \def\do##1{\global\csundef{prevline##1}}%
679   \dolistloop{\@series}%
680 }
681 %
```

**`\resetprevpage@num`** Inside the apparatus, at each note, the page number is stored in a macro called `\prevpageX@num`, where  $X$  is the letter of the current series. This macro is called when using `\Xparafootsep` or `\parafootsepX`. This macro must be reset at the beginning of each numbered section. The `\resetprevpage@` command resets this macro for every series.

```
\resetprevpage@82 \newcommand*{\resetprevpage@num}{%
683   \def\do##1{\ifcsdef{prevpage##1@num}{\global\csname prevpage##1@num\
endcsname=0}{}}%
684   \dolistloop{\@series}%
685 }
686 %
```

## V.10 Reading the line-list file

**`\read@linelist`** `\read@linelist{<file>}` is the control sequence that is called by `\beginnumbering` (via `\line@list@stuff`) to open and process a line-list file; its argument is the name of the file. First, it clear all previous line's list.

```
687 \newread\@inputcheck
688 \newcommand*{\read@linelist}[1]{%
689   \ifledRcol%
690     \list@clearing@regR%
691   \else%
692     \list@clearing@reg%
693   \fi%
694 }
```

When using `reledpar`, make sure that the `\maxlinesinpar@list` is empty (otherwise things will be thrown out of kilter if there is any old stuff still hanging in there).



```

695 \list@clear{\maxlinesinpar@list}
696 %

```

Now get the file and interpret it. When the file is there we start a new group and make some special definitions we will need to process it. It is a sequence of  $\text{\TeX}$  commands, but they require a few special settings. We make [ and ] become grouping characters: they are used that way in the line-list file, because we need to write them out one at a time rather than in balanced pairs, and it is easier to just use something other than real braces. @ must become a letter, since this is run in the ordinary  $\text{\LaTeX}$  context. We ignore carriage returns, since if we are in horizontal mode they can get interpreted as spaces to be printed.

Our line, page, and line-locking counters were already zeroed by `\line@list@stuff` if this is being called from within `\beginnumbering`; sub-lineation will be turned off as well in that case. On the other hand, if this is being called from `\resumenumbers`, those things should still have the values they had when `\pausenumbering` was executed.

If the file is not there, we print an informative message.

Now, after these preliminaries, we start interpreting the file.

```

697 \get@linelistfile{#1}%
698 \endgroup
699 %

```

When the reading is done, we are all through with the line-list file. All the information we needed from it will now be encoded in our list macros.

Finally, we initialize the `\next@actionline` and `\next@action` macros, which specify where and what the next action to be taken is.

```

700 \ifledRcol
701   \global\page@numR=\m@ne
702   \ifx\actionlines@listR\empty
703     \gdef\next@actionlineR{1000000}%
704   \else
705     \gl@p\actionlines@listR\to\next@actionlineR
706     \gl@p\actions@listR\to\next@actionR
707   \fi
708 \else
709   \global\page@num=\m@ne
710   \ifx\actionlines@list\empty
711     \gdef\next@actionline{1000000}%
712   \else
713     \gl@p\actionlines@list\to\next@actionline
714     \gl@p\actions@list\to\next@action
715   \fi
716 \fi
717 }
718 %

```

`\list@clearing@reg` Clears the lists for `\read@linelist`

```

719 \newcommand*{\list@clearing@reg}{%
720   \list@clear{\line@list}%
721   \list@clear{\insertlines@list}%
722   \list@clear{\actionlines@list}%
723   \list@clear{\actions@list}%
724   \list@clear{\linesinpar@listL}%
725   \list@clear{\linesonpage@listL}%
726 }%
727 %

```

`\get@linelistfile` reledmac can take advantage of the  $\LaTeX$  ‘safe file input’ macros to get the line-list file.

```

728 \newcommand*{\get@linelistfile}[1]{%
729   \inputIfFileExists{#1}{%
730     \global\noteschanged@false
731     \begingroup
732       \catcode`\[=1 \catcode`\]=2
733       \makeatletter \catcode`\^M=9}{%
734     \led@warn@NoLineFile{#1}%
735     \global\noteschanged@true
736     \begingroup}%
737 }
738 %
739 %

```

This version of `\read@linelist` creates list macros containing data for the entire section, so they could get rather large. It would be no more difficult to read the line-list file incrementally rather than all at once: we could read, at the start of each paragraph, only the commands relating to that paragraph. But this would require that we have two line-lists open at once, one for reading, one for writing, and on systems without version numbers we would have to do some file renaming outside of  $\LaTeX$  for that to work. We have retained this slower approach to avoid that sort of hacking about, but have provided the `\pausenumbering` and `\resumenumbering` macros to help you if you run into macro memory limitations (see 4.2.7 p. 17 above).

## V.11 Commands within the line-list file

This section defines the commands that can appear within a line-list file. They all have very short names because we are likely to be writing very large numbers of them out. One macro, `\@nl`, is especially short, since it will be written to the line-list file once for every line of text in a numbered section. (Another of these commands, `\@lab`, will be introduced in a later section, among the cross-referencing commands it is associated with.)

When these commands modify the various page and line counters, they deliberately do not use `\global`. This is because we want them to affect only the counter values within the current group when nested calls of `\@ref` occur. (The code assumes throughout that the value of `\globaldefs` is zero.)

The macros with action in their names contain all the code that modifies the action-code list: again, this is so that they can be turned off easily for nested calls of `\@ref`.

`\line@list@version` The `\line@list@version` check if the line-list file does not refers to the older commands of `reledmac`. In this case, we stop reading the line-list file. Consequently, `\line@list@version` must be the first line of a line-number file.

```

740 \newcommand{\line@list@version}[1]{%
741   \IfStrEq{#1}{\this@line@list@version}%
742   {}%
743   {\ifledRcol%
744     \led@warn@Obsolete{\jobname.\extensionchars\the\section@num}%
745     \else%
746     \led@warn@Obsolete{\jobname.\extensionchars\the\section@num}%
747     \fi%
748     \endinput%
749   }%
750 }%
751 %

```

`\@nl` `\@nl` does everything related to the start of a new line of numbered text.

`\@nl@reg` In order to get the `\setlinenum` to work Peter Wilson had to slip in some new code at the start of the macro, to get the timing of the actions correct. The problem was that his original naive implementation of `\setlinenum` had a unfortunate tendency to change the number of the last line of the *preceding* paragraph. The new code is sort of based on the page number handling and `\setline`. It seems that a lot of fiddling with the line number internals is required.

In November 2004 in order to accurately determine page numbers Peter Wilson added these to the macro. It is now:

`\@nl{<page counter number>}{<printed page number>}`

We do not (yet) use the printed number (i.e., the `\thepage`) but it may come in handy later. The macro `\fix@page` checks if a new page has started.

Exactly what `\@nl` does depends on whether right text is being processed. That's why many code is defined in `\@nl@reg` or `\nl@regR`.

```

752
753 \newcommand*{\@nl}[2]{%
754   \fix@page{#1}%
755   \ifledRcol%
756     \@nl@regR%
757   \else%
758     \@nl@reg%
759   \fi%
760 }
761 \newcommand*{\@nl@reg}{%
762   \ifx\l@dchset@num\relax \else
763     \advance\absline@num \@ne
764     \set@line@action
765     \let\l@dchset@num=\relax

```

```

766 \advance\absline@num \m@ne
767 \advance\line@num \m@ne
768 \fi
769 %

```

First increment the absolute line-number, and perform deferred actions relating to page starts and sub-lines.

```

770 \advance\absline@num \@ne
771 \ifx\next@page@num\relax \else
772 \page@action
773 \let\next@page@num=\relax
774 \fi
775 \ifx\sub@change\relax \else
776 \ifnum\sub@change>\z@
777 \sublines@true
778 \else
779 \sublines@false
780 \fi
781 \sub@action
782 \let\sub@change=\relax
783 \fi
784 %

```

Fix the lock counters, if necessary. A value of 1 is advanced to 2; 3 advances to 0; other values are unchanged.

```

785 \ifcase\@lock
786 \or
787 \@lock \tw@
788 \or \or
789 \@lock \z@
790 \fi
791 \ifcase\sub@lock
792 \or
793 \sub@lock \tw@
794 \or \or
795 \sub@lock \z@
796 \fi
797 %

```

Now advance the visible line number, unless it has been locked.

```

798 \ifsublines@
799 \ifnum\sub@lock<\tw@
800 \advance\subline@num \@ne
801 \fi
802 \else
803 \ifnum\@lock<\tw@
804 \advance\line@num \@ne \subline@num \z@
805 \fi
806 \fi}

```

```
807
808 %
```

**\last@page@num** **\fix@page** basically replaces **\@page**. It determines whether or not a new page has been started, based on the page values held by **\@n1**.

```
809 \newcount\last@page@num
810 \last@page@num=-10000
811
812 \newcommand*{\fix@page}[1]{%
813   \ifledRcol
814     \ifnum #1=\last@page@numR
815     \else
816       \ifbypage@R
817         \line@numR \z@ \subline@numR \z@
818       \fi
819       \page@numR=#1\relax
820       \last@page@numR=#1\relax
821       \def\next@page@numR{#1}%
822     \fi
823   \else
824     \ifnum #1=\last@page@num
825     \else
826       \ifbypage@
827         \line@num \z@ \subline@num \z@
828       \fi
829       \page@num=#1\relax
830       \last@page@num=#1\relax
831       \def\next@page@num{#1}%
832       \listxadd{\normal@page@break}{\the\absline@num}
833     \fi
834   \fi}
835 %
```

**\@pend** These do not do anything at this point, but will have been added to the auxiliary file(s) if the **reledpar** package has been used. They are just here to stop **reledmac** from moaning if the **reledpar** is used for one run and then not for the following one.

```
\@lopL
\@lopR
836 \newcommand*{\@pend}[1]{}
837 \newcommand*{\@pendR}[1]{}
838 \newcommand*{\@lopL}[1]{}
839 \newcommand*{\@lopR}[1]{}
840
841 %
```

**\sub@on** The **\sub@on** and **\sub@off** macros turn sub-lineation on and off: but not directly, since such changes do not really take effect until the next line of text. Instead they set a flag that notifies **\@n1** of the necessary action.

```

842 \newcommand*\sub@on{\ifsublines@
843   \let\sub@change=\relax
844   \else
845     \def\sub@change{1}%
846   \fi}
847 \newcommand*\sub@off{\ifsublines@
848   \def\sub@change{-1}%
849   \else
850     \let\sub@change=\relax
851   \fi}
852
853 %

```

**\@adv** The `\@adv{<num>}` macro advances the current visible line number by the amount specified as its argument. This is used to implement `\advanceline`.

```

854
855 \newcommand*\@adv}[1]{%
856   \ifsublines@
857     \ifledRcol
858       \advance\subline@numR by #1\relax
859       \ifnum\subline@numR<\z@
860         \led@warn@BadAdvancelineSubline
861         \subline@numR \z@
862       \fi
863     \else
864       \advance\subline@num by #1\relax
865       \ifnum\subline@num<\z@
866         \led@warn@BadAdvancelineSubline
867         \subline@num \z@
868       \fi
869     \fi
870   \else
871     \ifledRcol
872       \advance\line@numR by #1\relax
873       \ifnum\line@numR<\z@
874         \led@warn@BadAdvancelineLine
875         \line@numR \z@
876       \fi
877     \else
878       \advance\line@num by #1\relax
879       \ifnum\line@num<\z@
880         \led@warn@BadAdvancelineLine
881         \line@num \z@
882       \fi
883     \fi
884   \fi
885   \set@line@action}
886
887 %

```

**\@set** The \@set{<num>} macro sets the current visible line number to the value specified as its argument. This is used to implement \setline.

```

888
889 \newcommand*\@set}[1]{%
890   \ifledRcol
891     \ifsublines@
892       \subline@numR=#1\relax
893     \else
894       \line@numR=#1\relax
895     \fi
896     \set@line@action
897   \else
898     \ifsublines@
899       \subline@num=#1\relax
900     \else
901       \line@num=#1\relax
902     \fi
903     \set@line@action
904   \fi}
905
906 %

```

**\l@d@set** The \l@d@set{<num>} macro sets the line number for the next \pstart to the value specified as its argument. This is used to implement \setlinenum.  
**\l@dchset@num** \l@dchset@num is a flag to the \@nl? macro. If it is not \relax then a linenum change is to be done.

```

907
908 \newcommand*\l@d@set}[1]{%
909   \ifledRcol
910     \line@numR=#1\relax
911     \advance\line@numR \@ne
912     \def\l@dchset@num{#1}
913   \else
914     \line@num=#1\relax
915     \advance\line@num \@ne
916     \def\l@dchset@num{#1}
917   \fi}
918 \let\l@dchset@num\relax
919
920 %

```

**\page@action** \page@action adds an entry to the action-code list to change the page number.

```

921
922 \newcommand*\page@action{%
923   \ifledRcol
924     \xright@appenditem{\the\absline@numR}\to\actionlines@listR
925     \xright@appenditem{\next@page@numR}\to\actions@listR

```

```

926 \else
927   \xright@appenditem{\the\absline@num}\to\actionlines@list
928   \xright@appenditem{\next@page@num}\to\actions@list
929 \fi}
930 %

```

**\set@line@action** \set@line@action adds an entry to the action-code list to change the visible line number.

```

931
932 \newcommand*\set@line@action{%
933   \ifledRcol
934     \xright@appenditem{\the\absline@numR}\to\actionlines@listR
935     \ifsublines@
936       \@l@tempcnta=-\subline@numR
937     \else
938       \@l@tempcnta=-\line@numR
939     \fi
940     \advance\@l@tempcnta by -5000\relax
941     \xright@appenditem{\the\@l@tempcnta}\to\actions@listR
942   \else
943     \xright@appenditem{\the\absline@num}\to\actionlines@list
944     \ifsublines@
945       \@l@tempcnta=-\subline@num
946     \else
947       \@l@tempcnta=-\line@num
948     \fi
949     \advance\@l@tempcnta by -5000\relax
950     \xright@appenditem{\the\@l@tempcnta}\to\actions@list
951   \fi}
952 %

```

**\sub@action** \sub@action adds an entry to the action-code list to turn sub-lineation on or off, according to the current value of the \ifsublines@ flag.

```

953
954 \newcommand*\sub@action{%
955   \ifledRcol
956     \xright@appenditem{\the\absline@numR}\to\actionlines@listR
957     \ifsublines@
958       \xright@appenditem{-1001}\to\actions@listR
959     \else
960       \xright@appenditem{-1002}\to\actions@listR
961     \fi
962   \else
963     \xright@appenditem{\the\absline@num}\to\actionlines@list
964     \ifsublines@
965       \xright@appenditem{-1001}\to\actions@list
966     \else
967       \xright@appenditem{-1002}\to\actions@list

```



```

968 \fi
969 \fi}
970 %

```

`\lock@on` adds an entry to the action-code list to turn line number locking on. The current setting of the sub-lineation flag tells us whether this applies to line numbers or sub-line numbers.

Adding commands to the action list is slow, and it is very often the case that a lock-on command is immediately followed by a lock-off command in the line-list file, and therefore really does nothing. We use a look-ahead scheme here to detect such pairs, and add nothing to the line-list in those cases.

```

971 \newcommand*{\lock@on}{\futurelet\next\do@lockon}
972
973 \newcommand*{\do@lockon}{%
974   \ifx\next\lock@off
975     \global\let\lock@off=\skip@lockoff
976   \else
977     \ifledRcol
978       \do@lockonR
979     \else
980       \do@lockonL
981     \fi
982   \fi}
983
984
985 \newcommand*{\do@lockonL}{%
986   \xright@appenditem{\the\absline@num}\to\actionlines@list
987   \ifsublines@
988     \xright@appenditem{-1005}\to\actions@list
989     \ifnum\sub@lock=\z@
990       \sub@lock \@ne
991     \else
992       \ifnum\sub@lock=\thr@@
993         \sub@lock \@ne
994       \fi
995     \fi
996   \else
997     \xright@appenditem{-1003}\to\actions@list
998     \ifnum\@lock=\z@
999       \@lock \@ne
1000     \else
1001       \ifnum\@lock=\thr@@
1002         \@lock \@ne
1003       \fi
1004     \fi
1005   \fi}
1006 %
1007

```

`\lock@off` `\lock@off` adds an entry to the action-code list to turn line number locking off.

```

\do@lockoff
\do@lockoffL
\skip@lockoff
1008 \newcommand*{\do@lockoffL}{%
1009   \xright@appenditem{\the\absline@num}\to\actionlines@list
1010   \ifsublines@
1011     \xright@appenditem{-1006}\to\actions@list
1012     \ifnum\sub@lock=\tw@
1013       \sub@lock \thr@@
1014     \else
1015       \sub@lock \z@
1016     \fi
1017   \else
1018     \xright@appenditem{-1004}\to\actions@list
1019     \ifnum\@lock=\tw@
1020       \@lock \thr@@
1021     \else
1022       \@lock \z@
1023     \fi
1024   \fi}
1025
1026 \newcommand*{\do@lockoff}{%
1027   \ifledRcol
1028     \do@lockoffR
1029   \else
1030     \do@lockoffL
1031   \fi}
1032 \newcommand*{\skip@lockoff}{\global\let\lock@off=\do@lockoff}
1033 \global\let\lock@off=\do@lockoff
1034
1035 %

```

`\n@num` These macros implement the `\skipnumbering` command. They use action code 1007.

```

1036 \newcommand*{\n@num}{%
1037   \ifledRcol%
1038     \xright@appenditem{\the\absline@numR}\to\actionlines@listR
1039     \xright@appenditem{-1007}\to\actions@listR
1040   \else%
1041     \xright@appenditem{\the\absline@num}\to\actionlines@list%
1042     \xright@appenditem{-1007}\to\actions@list%
1043   \fi%
1044 }%
1045
1046 %

```

`\n@num@stanza` This macro implements the `\skipnumbering` for stanza command. It uses action code 1008.

```

1047 \newcommand*{\n@num@stanza}{%

```

```

1048 \ifledRcol%
1049 \xright@appenditem{\the\absline@numR}\to\actionlines@listR%
1050 \xright@appenditem{-1008}\to\actions@listR%
1051 \else%
1052 \xright@appenditem{\the\absline@num}\to\actionlines@list%%
1053 \xright@appenditem{-1008}\to\actions@list%
1054 \fi%
1055 }
1056 %

```

**\ifl@dhidenumber** \hidenumbering hides number in margin. It uses action code 1009.

**\hidenumbering**

**\h@num**<sub>57</sub> \newif\ifl@dhidenumber

```

1058 \newcommand*{\hidenumbering}{
1059 \ifledRcol%
1060 \write\linenum@outR{\string\hide@num}%
1061 \else%
1062 \write\linenum@out{\string\hide@num}%
1063 \fi%
1064 }%
1065 \newcommand*{\hide@num}{%
1066 \ifledRcol%
1067 \xright@appenditem{\the\absline@numR}\to\actionlines@listR%
1068 \xright@appenditem{-1009}\to\actions@listR%
1069 \else%
1070 \xright@appenditem{\the\absline@num}\to\actionlines@list%%
1071 \xright@appenditem{-1009}\to\actions@list%
1072 \fi%
1073 }
1074 %

```

**\@ref** \@ref marks the start of a passage, for creation of a footnote reference. It takes two

**\insert@count** arguments:

- #1, the number of entries to add to \insertlines@list for this reference. This value, here and within \edtext, which computes it and writes it to the line-list file, will be stored in the count \insert@count.

```

1075 \newcount\insert@count
1076 %

```

- #2, a sequence of other line-list-file commands, executed to determine the ending line-number. (This may also include other \@ref commands, corresponding to uses of \edtext within the first argument of another instance of \edtext.)

**\dummy@ref** When nesting of \@ref commands does occur, it is necessary to temporarily redefine \@ref within \@ref, so that we are only doing one of these at a time.

```

1077 \newcommand*{\dummy@ref}[2]{#2}
1078 %

```

`\@ref@reg` The first thing `\@ref` (i.e. `\@ref@reg`) itself does is to add the specified number of items to the `\insertlines@list` list.

```

1079 \newcommand*{\@ref}[2]{%
1080   \ifledRcol%
1081     \@ref@regR{#1}{#2}%
1082   \else%
1083     \@ref@reg{#1}{#2}%
1084   \fi%
1085 }%
1086 \newcommand*{\@ref@reg}[2]{%
1087   \global\insert@count=#1\relax
1088   \global\advance\@edtext@level by 1%
1089   \loop\ifnum\insert@count>\z@
1090     \xright@appenditem{\the\absline@num}\to\insertlines@list
1091     \global\advance\insert@count \m@ne
1092   \repeat
1093 %

```

Next, process the second argument to determine the page and line numbers for the end of this lemma. We temporarily equate `\@ref` to a different macro that just executes its argument, so that nested `\@ref` commands are just skipped this time. Some other macros need to be temporarily redefined to suppress their action.

```

1094 \begingroup
1095   \let\@ref=\dummy@ref
1096   \let\@lopL\@gobble
1097   \let\page@action=\relax
1098   \let\sub@action=\relax
1099   \let\set@line@action=\relax
1100   \let\@lab=\relax
1101   \let\@lemma=\relax%
1102   \let\@sw\@gobblethree%
1103   #2
1104   \global\endpage@num=\page@num
1105   \global\endline@num=\line@num
1106   \global\endsubline@num=\subline@num
1107 \endgroup
1108 %

```

Now store all the information about the location of the lemma's start and end in `\line@list`.

```

1109 \xright@appenditem%
1110   {\the\page@num|\the\line@num|%
1111     \ifsublines@ \the\subline@num \else 0\fi}%
1112   {\the\endpage@num|\the\endline@num|%
1113     \ifsublines@ \the\endsubline@num \else 0\fi}}\to\line@list
1114 %

```

Create a list which stores every second argument of each `\@sw` in this lemma, at this level. Also set the boolean about the use of lemma in this edtext level to false.

```

1115 \expandafter\list@create\expandafter{\csname sw@list@edtext@tmp@the\
@edtext@level\endcsname}%
1116 \providebool{lemmacommand@the\@edtext@level}%
1117 \boolfalse{lemmacommand@the\@edtext@level}%
1118 %

```

Execute the second argument of \@ref again, to perform for real all the commands within it.

```

1119 #2%
1120 %

```

Now, we store the list of \@sw of this current \edtext as an element of the global list of list of \@sw for a \edtext depth.

```

1121 \ifnum\@edtext@level>0%
1122 \def\create@this@edtext@level{\expandafter\list@create\expandafter{\
csname sw@list@edtext@the\@edtext@level\endcsname}}%
1123 \ifcsundef{sw@list@edtext@the\@edtext@level}{\create@this@edtext@level
}%}%
1124 \letcs{\@tmp}{sw@list@edtext@the\@edtext@level}%
1125 \letcs{\@tmpp}{sw@list@edtext@tmp@the\@edtext@level}%
1126 \xright@appenditem{\expandonce\@tmpp}\to\@tmp%
1127 \global\cslet{sw@list@edtext@the\@edtext@level}{\@tmp}%
1128 \fi%
1129 %

```

Decrease edtext level counter.

```

1130 \global\advance\@edtext@level by -1%
1131 %
1132 }
1133 %
1134 %

```

## V.12 Writing to the line-list file

We have now defined all the counters, lists, and commands involved in reading the line-list file at the start of a section. Now we will cover the commands that `reledmac` uses within the text of a section to write commands out to the line-list.

`\linenum@out` The file will be opened on output stream \linenum@out.

```

1135 \newwrite\linenum@out
1136 %

```

`\iffirst@linenum@out@` Once any file is opened on this stream, we keep it open forever, or else switch to another  
`\first@linenum@out@true` file that we keep open. The reason is that we want the output routine to write the page  
`\first@linenum@out@false` number for every page to this file; otherwise we would have to write it at the start of every line. But it is not very easy for the output routine to tell whether an output stream

is open or not. There is no way to test the status of a particular output stream directly, and the asynchronous nature of output routines makes the status hard to determine by other means.

We can manage pretty well by means of the `\iffirst@linenum@out@` flag; its inelegant name suggests the nature of the problem that made its creation necessary. It is set to be true before any `\linenum@out` file is opened. When such a file is opened for the first time, it is done using `\immediate`, so that it will at once be safe for the output routine to write to it; we then set this flag to false.

```
1137 \newif\iffirst@linenum@out@
1138 \first@linenum@out@true
1139 %
```

**`\this@line@list@version`** The commands allowed in the line-list file and their arguments can change between two version of `reledmac`. The `\this@line@list@version` command is upgraded when it happens. It is written in the file list. If we process a line-list file which used a older version, that means the commands used inside are deprecated, and we can't use them.

```
1140 \newcommand{\this@line@list@version}{5}%
1141 %
```

**`\line@list@stuff`** The `\line@list@stuff{<file>}` macro, which is called by `\beginnumbering`, performs all the line-list operations needed at the start of a section. Its argument is the name of the line-list file.

```
1142 \newcommand*{\line@list@stuff}[1]{%
1143 %
```

First, use the commands of the previous section to interpret the line-list file from the last run.

```
1144 \read@linelist{#1}%
1145 %
```

Now close the current output line-list file, if any, and open a new one. The first time we open a line-list file for output, we do it using `\immediate`, and clear the `\iffirst@linenum@out@` flag.

```
1146 \iffirst@linenum@out@
1147 \immediate\closeout\linenum@out%
1148 \global\first@linenum@out@false%
1149 \immediate\openout\linenum@out=#1\relax%
1150 \immediate\write\linenum@out{\string\line@list@version{\
this@line@list@version}}%
1151 \ifl@dpaging%
1152 \immediate\write\linenum@out{\string\@par@sync@option{\
@par@this@sync@option}}%
1153 \fi%
1154 \else
1155 %
```

If we get here, then this is not the first line-list we have seen, so we do not open or close the files immediately.

```

1156 \if@minipage%
1157 \leavevmode%
1158 \fi%
1159 \closeout\linenum@out%
1160 \openout\linenum@out=#1\relax%
1161 \fi}
1162
1163 %

```

**\newline** The `\newline` macro sends the `\@nl` command to the line-list file, to mark the start of a new text line, and its page number.

```

1164 \newcommand*{\newline}{%
1165 \IfStrEq{\led@pb@setting}{after}%
1166 {\xifinlist{the\absline@num}{\l@prev@nopb}%
1167 {\xifinlist{the\absline@num}{\normal@page@break}%
1168 {\numgdef{\@next@page}{\c@page+1}%
1169 \write\linenum@out{\string\@nl[\@next@page][\@next@page]}}%
1170 }%
1171 {\write\linenum@out{\string\@nl[the\c@page][thepage]}}}%
1172 }%
1173 {\write\linenum@out{\string\@nl[the\c@page][thepage]}}}%
1174 }%
1175 \IfStrEq{\led@pb@setting}{before}%
1176 {\numgdef{\next@absline}{the\absline@num+1}%
1177 \xifinlist{\next@absline}{\l@prev@nopb}%
1178 {\xifinlist{the\absline@num}{\normal@page@break}%
1179 {\numgdef{\nc@page}{\c@page+1}%
1180 \write\linenum@out{\string\@nl[\nc@page][\nc@page]}}%
1181 }%
1182 {\write\linenum@out{\string\@nl[the\c@page][thepage]}}}%
1183 }%
1184 {\write\linenum@out{\string\@nl[the\c@page][thepage]}}}%
1185 }%
1186 {}%
1187 \IfStrEqCase{\led@pb@setting}{before}{\relax}{after}{\relax}}{\write\linenum@out{\string\@nl[the\c@page][thepage]}}%
1188 }
1189
1190 %

```

**\if@noneed@Footnote** `\if@noneed@Footnote` is a boolean to check if we have to print a error message when a `\edtext` is called without any critical notes.

**\flag@start** We enclose a lemma marked by `\edtext` in `\flag@start` and `\flag@end`: these send the `\@ref` command to the line-list file. `\edtext` is responsible for setting the value of `\insert@count` appropriately; it actually gets done by the various footnote macros.

```

1191 \newif\if@noneed@Footnote%
1192
1193 \newcommand*{\flag@start}{%
1194   \ifledRcol%
1195     \edef\next{\write\linenum@outR{%
1196       \string\@ref[\the\insert@countR] []}%
1197     \next%
1198     \ifnum\insert@countR<1%
1199       \if@noneed@Footnote\else%
1200         \led@err@EdtextWithoutFootnote%
1201       \fi%
1202     \fi%
1203   \else%
1204     \edef\next{\write\linenum@out{%
1205       \string\@ref[\the\insert@count] []}%
1206     \next%
1207     \ifnum\insert@count<1%
1208       \if@noneed@Footnote\else%
1209         \led@err@EdtextWithoutFootnote%
1210       \fi%
1211     \fi%
1212   \fi}%
1213
1214 %

```

**\startsub**    **\startsub** and **\endsub** turn sub-lineation on and off, by writing appropriate instructions to the line-list file. When sub-lineation is in effect, the line number counter is frozen and the sub-line counter advances instead. If one of these commands appears in the middle of a line, it does not take effect until the next line; in other words, a line is counted as a line or sub-line depending on what it started out as, even if that changes in the middle.

We tinker with **\lastskip** because a command of either sort really needs to be attached to the last word preceding the change, not the first word that follows the change. This is because sub-lineation will often turn on and off in mid-line—stage directions, for example, often are mixed with dialogue in that way—and when a line is mixed we want to label it using the system that was in effect at its start. But when sub-lineation begins at the very start of a line we have a problem, if we don't put in this code.

```

1215
1216
1217 \newcommand*{\startsub}{\dimen0\lastskip
1218   \ifdim\dimen0>0pt \unskip \fi
1219   \ifledRcol \write\linenum@outR{\string\sub@on}%
1220   \else      \write\linenum@out{\string\sub@on}%
1221   \fi
1222   \ifdim\dimen0>0pt \hskip\dimen0 \fi}
1223 \def\endsub{\dimen0\lastskip
1224   \ifdim\dimen0>0pt \unskip \fi
1225   \ifledRcol \write\linenum@outR{\string\sub@off}%

```



```

1226 \else      \write\linenum@out{\string\sub@off}%
1227 \fi
1228 \ifdim\dimen0>0pt \hskip\dimen0 \fi}
1229
1230 %

```

**\advanceline** You can use `\advanceline{<num>}` in running text to advance the current visible line-number by a specified value, positive or negative.

```

1231 \newcommand*{\advanceline}[1]{\leavevmode%
1232 \ifledRcol \write\linenum@outR{\string\@adv[#1]}%
1233 \else      \write\linenum@out{\string\@adv[#1]}%
1234 \fi}%
1235 }
1236 %

```

**\setline** You can use `\setline{<num>}` in running text (i.e., within `\pstart...pend`) to set the current visible line-number to a specified positive value.

```

1237
1238 \newcommand*{\setline}[1]{%
1239 \leavevmode%
1240 \ifnum#1<\z@
1241 \led@warn@BadSetline
1242 \else
1243 \ifledRcol \write\linenum@outR{\string\@set[#1]}%
1244 \else      \write\linenum@out{\string\@set[#1]}%
1245 \fi
1246 \fi}
1247
1248 %

```

**\setlinenum** You can use `\setlinenum{<num>}` before a `\pstart` to set the visible line-number to a specified positive value. It writes a `\l@d@set` command to the line-list file.

```

1249
1250 \newcommand*{\setlinenum}[1]{%
1251 \ifnum#1<\z@
1252 \led@warn@BadSetlinenum
1253 \else
1254 \ifledRcol \write\linenum@outR{\string\l@d@set[#1]}
1255 \else      \write\linenum@out{\string\l@d@set[#1]} \fi
1256 \fi}
1257
1258 %

```

**\startlock** You can use `\startlock` or `\endlock` in running text to start or end line number locking at the current line. They decide whether line numbers or sub-line numbers are affected, depending on the current state of the sub-lineation flags.

```

1259 \newcommand*{\startlock}{%
1260 \ifledRcol \write\linenum@outR{\string\lock@on}%
1261 \else      \write\linenum@out{\string\lock@on}%
1262 \fi}
1263 \def\endlock{%
1264 \ifledRcol \write\linenum@outR{\string\lock@off}%
1265 \else      \write\linenum@out{\string\lock@off}%
1266 \fi}
1267 %
1268 %

```

`\ifl@dskipnumber` In numbered text `\skipnumbering` will suspend the numbering for that particular line.  
`\ifl@dskipversenumber`

```

1269 \l@dskipnumbertrue \newif\ifl@dskipnumber
1270 \l@dskipnumberfalse \newif\ifl@dskipversenumber%
1271 \skipnumbering \newcommand*{\skipnumbering}{%
1272 \leavevmode%
1273 \ifledRcol%
1274 \ifinstanza%
1275 \write\linenum@outR{\string\n@num@stanza}%
1276 \else%
1277 \write\linenum@outR{\string\n@num}%
1278 \fi%
1279 \advanceline{-1}%
1280 \else%
1281 \ifinstanza%
1282 \write\linenum@out{\string\n@num@stanza}%
1283 \else%
1284 \write\linenum@out{\string\n@num}%
1285 \fi%
1286 \advanceline{-1}%
1287 \fi%
1288 }%
1289 %
1290 %

```

## VI Marking text for notes

The `\edtext` macro is used to create all footnotes and endnotes, as well as to print the portion of the main text to which a given note or notes is keyed. The idea is to have that lemma appear only once in the `.tex` file: all instances of it in the main text and in the notes are copied from that one appearance.

The `\edtext` macro takes two arguments.

```
\edtext{#1}{#2}
```

- #1 is the piece of the main text being glossed; it gets added to the main text, and is also used as a lemma for notes to it.
- #2 is a series of subsidiary macros that generate various kinds of notes.

The `\edtext` macro may be used (somewhat) recursively; that is, `\edtext` may be used within its own first argument. The code would be much simpler without this feature, but nested notes will commonly be necessary: it is quite likely that we will have an explanatory note for a long passage and notes on variants for individual words within that passage. The situation we can't handle is overlapping notes that are not nested: for example, one note covering lines 10–15, and another covering 12–18. You can handle such cases by using the `\lemma` and `\linenum` macros within #2: they alter the copy of the lemma and the line numbers that are passed to the notes, and hence allow you to overcome any limitations of this system, albeit with extra effort.

The recursive operation of `\edtext` will fail if you try to use a copy that is called something other than `\edtext`. In order to handle recursion, `\edtext` needs to redefine its own definition temporarily at one point, and that does not work if the macro you are calling is not actually named `\edtext`. There is no problem as long as `\edtext` is not invoked in the first argument. If you want to call `\edtext` something else, it is best to create instead a macro that expands to an invocation of `\edtext`, rather than copying `\edtext` and giving it a new name; otherwise you will need to add an appropriate definition for your new macro to `\morenoexpands`.

Side effects of our line-numbering code make it impossible to use the usual footnote macros directly within a paragraph whose lines are numbered (see comments to `\do@line`, VII.2.1 p. 126). Instead, the appropriate note-generating command is appended to the list macro `\inserts@list`, and when `\pend` completes the paragraph it inserts all the notes at the proper places.

Note that we do not provide previous-note information, although it is often wanted; your own macros must handle that. We cannot do it correctly without keeping track of what kind of notes have gone past: it is not just a matter of remembering the line numbers associated with the previous invocation of `\edtext`, because that might have been for a different kind of note. It is preferable for your footnote macros to store and recall this kind of information if they need it.

## VI.1 `\edtext` itself

The various note-generating macros might want to request that commands be executed not at once, but in close connection with the start or end of the lemma. For example, footnote numbers in the text should be connected to the end of the lemma; or, instead of a single macro to create a note listing variants, you might want to use several macros in series to create individual variants, which would each add information to a private macro or token register, which in turn would be formatted and output when all of #2 for the lemma has been read.

`\end@lemmas` To accomodate this, we provide a list macro to which macros may add commands that should subsequently be executed at the end of the lemma when that lemma is added to the text of the paragraph. A macro should add its contribution to `\end@lemmas` by

using `\xleft@appenditem`. (Anything that needs to be done at the *start* of the lemma may be handled using `\aftergroup`, since the commands specified within `\edtext`'s second argument are executed within a group that ends just before the lemma is added to the main text.)

`\end@lemmas` is intended for the few things that need to be associated with the end of the lemma, like footnote numbers. Such numbers are not implemented in the current version, and indeed no use is currently made of `\end@lemmas` or of the `\aftergroup` trick. The general approach would be to define a macro to be used within the second argument of `\edtext` that would add the appropriate command to `\end@lemmas`.

Commands that are added to this list should always take care not to do anything that adds possible line-breaks to the output; otherwise line numbering could be thrown off.

```
1291 \list@create{\end@lemmas}
1292 %
```

`\dummy@edtext` We now need to define a number of macros that allow us to weed out nested instances of `\edtext`, and other problematic macros, from our lemma. This is similar to what we did in reading the line-list file using `\dummy@ref` and various redefinitions—and that is because nested `\edtexts` macros create nested `\@ref` entries in the line-list file.

```
1293 \newcommand{\dummy@edtext}[2]{#1}
1294 %
```

`\dummy@edtext@showlemma` Some time, we want to obtain only the first argument of `\edtext`, while also wrapping it in `\showlemma`. For example, when printing a `\eledsection`.

```
1295 \newcommand{\dummy@edtext@showlemma}[2]{\showlemma{#1}}%
1296 %
```

We are going to need another macro that takes one argument and ignores it entirely. This is supplied by the  $\TeX$  `\@gobble{<arg>}`.

`\no@expands` We need to turn off macro expansion for certain sorts of macros we are likely to see within the lemma and within the notes.

The first class is font-changing macros. We suppress expansion for them by letting them become equal to zero.<sup>26</sup> This is done because we want to pass into our notes the generic commands to change to roman or whatever, and not their expansions that will ask for a particular style at a specified size. The notes may well be in a smaller font, so the command should be expanded later, when the note's environment is in effect.

A second sort to turn off includes a few of the accent macros. Most are not a problem: an accent that is expanded to an `\accent` command may be harder to read but it works just the same. The ones that cause problems are: those that use alignments— $\TeX$  seems to get confused about the difference between alignment parameters and macro parameters; those that use temporary control sequences; and those that look carefully at what the current font is.

---

<sup>26</sup>Since 'control sequences equivalent to characters are not expandable'—*The TeXbook*, answer to Exercise 20.14.

(The `\copyright` macro defined in PLAIN  $\TeX$  has this sort of problem as well, but is not used enough to bother with. That macro, and any other that causes trouble, will get by all right if you put a `\protect` in front of it in your file.)

We also need to eliminate all `reledmac` macros like `\edlabel` and `\setline` that write things to auxiliary files: that writing should be done only once. And we make `\edtext` itself, if it appears within its own argument, do nothing but copy its first argument.

Finally, we execute `\morenoexpands`. The version of `\morenoexpands` defined here does nothing; but you may define a version of your own when you need to add more expansion suppressions as needed with your macros. That makes it possible to make such additions without needing to copy or modify the standard `reledmac` code. If you define your own `\morenoexpands`, you must be very careful about spaces: if the macro adds any spaces to the text when it runs, extra space will appear in the main text when `\edtext` is used.

(A related problem, not addressed by these two macros, is that of characters whose category code is changed by any the macros used in the arguments to `\edtext`. Since the category codes are set when the arguments are scanned, macros that depend on changing them will not work. We have most often encountered this with characters that are made ‘active’ within text in some, but not all, of the languages used within the document. One way around the problem, if it takes this form, is to ensure that those characters are *always* active; within languages that make no special use of them, their associated control sequences should simply return the proper character. A simpler solution is to avoid active character, using Lua $\TeX$  or Xe $\LaTeX$ .)

```

1297 \newcommand*{\no@expands}{%
1298   \let\select@lemmafnt=0%
1299   \let\startsub=\relax \let\endsub=\relax
1300   \let\startlock=\relax \let\endlock=\relax
1301   \let\edlabel=\@gobble
1302   \let\setline=\@gobble \let\advanceline=\@gobble
1303   \let\sameword\sameword@inedtext%
1304   \let\edtext=\dummy@edtext
1305   \l@dtabnoexpands
1306   \morenoexpands}
1307 \let\morenoexpands=\relax
1308
1309 %

```

**`\@tag`** Now, we define an empty `\@tag` command. It will be redefine by `\edtext`: its value is the first argument. It will be used by the `\Xfootnote` commands.

```

1310 \newcommand{\@tag}{}
1311 %

```

**`\@edtext@level`** This counter is increased by 1 at each level of `\edtext`. That is useful for some commands which can have a different behavior if called inside or outside of the `{\lemma}` argument.

```

1312 \newcount\@edtext@level%
1313 \@edtext@level=0%
1314 %

```

**\edtext** When executed, `\edtext` first ensures that we are in horizontal mode.

```

1315 \newcommand{\edtext}[2]{\leavevmode%
1316 %

```

Then, check if we are in a numbered paragraph (`\pstart...\pend`).

```

1317 \ifnumberedpar%
1318 %

```

We increase the `\@edtext@` counter to know in which level of `\edtext` we are.

```

1319 \global\advance\@edtext@level by 1%
1320 %

```

By default, we do not use `\lemma`

```

1321 \global\@lemmacommand@false%
1322 %

```

```

1323 \begingroup%
1324 %

```

We get the next series of samewords data in the list of samewords data for the current `edtext` level. We push them inside `\sw@inthisedtext`.

```

1325 \iflabeledRcol%
1326 \ifcsundef{sw@list@edtextR@the\@edtext@level}%
1327 {\global\let\sw@inthisedtext\empty}%
1328 {\ifcseempty{sw@list@edtextR@the\@edtext@level}%
1329 {\global\let\sw@inthisedtext\empty}%
1330 {\expandafter\gl@p\csname sw@list@edtextR@the\@edtext@level\endcsname\
to\sw@inthisedtext}%
1331 }%
1332 \else%
1333 \ifcsundef{sw@list@edtext@the\@edtext@level}%
1334 {\global\let\sw@inthisedtext\empty}%
1335 {\ifcseempty{sw@list@edtext@the\@edtext@level}%
1336 {\global\let\sw@inthisedtext\empty}%
1337 {\expandafter\gl@p\csname sw@list@edtext@the\@edtext@level\endcsname\
to\sw@inthisedtext}%
1338 }%
1339 \fi%
1340 %

```

**\@tag** Our normal lemma is just argument #1; but that argument could have further invocations of `\edtext` within it. We get a copy of the lemma without any `\edtext` macros

within it by temporarily redefining `\edtext` to just copy its first argument and ignore the other, and then expand `#1` into `\@tag`, our lemma.

This is done within a group that starts here, in order to get the original `\edtext` restored; within this group we have also turned off the expansion of those control sequences commonly found within text that can cause trouble for us.

```
1341 \global\renewcommand{\@tag}{%
1342 \no@expands #1%
1343 }%
1344 %
```

`\l@d@nums` Prepare more data for the benefit of note-generating macros: the line references and font specifier for this lemma go to `\l@d@nums`.

```
1345 \set@line%
1346 %
```

`\insert@count` will be altered by the note-generating macros: it counts the number of deferred footnotes or other insertions generated by this instance of `\edtext`. If we are in a right column (`reledpar`), we use `\insert@countR` instead of `\insert@count`.

```
1347 \ifledRcol \global\insert@countR \z@%
1348 \else \global\insert@count \z@ \fi%
1349 %
```

Now process the note-generating macros in argument #2 (i.e., `\Afootnote`, `\lemma`, etc.). `\ignorespaces` is here to skip over any spaces that might appear at the start of #2; otherwise they wind up in the main text. Footnote and other macros that are used within #2 should all end with `\ignorespaces` as well, to skip any spaces between macros when several are used in series.

```
1350 \ignorespaces #2\relax%
1351 %
```

With `polyglossia`, you must track whether the language reads left to right (English) or right to left (Arabic).

```
1352 \@ifundefined{xpg@main@language}{%if not polyglossia
1353 \flag@start}%
1354 {\if@RTL\flag@end\else\flag@start\fi%
1355 }%
1356 %
```

We write in the numbered file whether the current `\edtext` has a `\lemma` in the the second argument.

```
1357 \if@lemmacommand@%
1358 \ifledRcol%
1359 \write\linenum@outR{\string\@lemma}%
1360 \else%
1361 \write\linenum@out{\string\@lemma}%
1362 \fi%
```

```

1363 \fi%
1364 %

```

Finally, we are ready to admit the first argument into the current paragraph.

It is important that we generate and output all the notes for this chunk of text *before* putting the text into the paragraph: notes that are referenced by line number should generally be tied to the start of the passage they gloss, not the end. That should all be done within the expansion of #2 above, or in `\aftergroup` commands within that expansion.

```

1365 \endgroup%
1366 \showlemma{#1}%
1367 %

```

Finally, we add any insertions that are associated with the *end* of the lemma. Footnotes that are identified by symbols rather than by where the lemma begins in the main text need to be done here, and not above.

```

1368 \ifx\end@lemmas\empty \else%
1369 \gl@p\end@lemmas\to\x@lemma%
1370 \x@lemma%
1371 \global\let\x@lemma=\relax%
1372 \fi%
1373 \ifundefined{xpg@main@language}{%if not polyglossia
1374 \flag@end}%
1375 {\ifRTL\flag@start\else\flag@end\fi% With polyglossia, you must
track whether the language reads left to right (English) or right to left
(Arabic).
1376 }%
1377 %

```

We switch some flags to false.

- The one that checks having footnotes inside a `\edtext`.
- The one that says we are inside a `\edtext`. In fact, it is not a flag, but a counter which is increased to 1 in each level of `\edtext`.
- The one that says we are inside a `\@lemma`.

```

1378 \global\@noneed@Footnotefalse%
1379 \global\advance\@edtext@level by -1%
1380 \global\@lemmacommand@false%
1381 %

```

If we are outside of a numbered paragraph, we send error message and print the first argument.

```

1382 \else%
1383 \showlemma{#1} (\textbf{\textsc{Edtext outside numbered paragraph}})\
led@err@edtextoutsidestart%
1384 \fi%

```



```

1385 }%
1386
1387 \newcommand*{\flag@end}{%
1388   \ifledRcol%
1389     \write\linenum@outR{]}%
1390   \else%
1391     \write\linenum@out{]}%
1392   \fi}%
1393
1394 %

```

**\ifnumberline** The `\ifnumberline` option can be set to `FALSE` to disable line numbering.

```

1395 \newif\ifnumberline
1396 \numberlinetrue
1397 %

```

**\set@line** The `\set@line` macro is called by `\edtext` to put the line-reference field and font specifier for the current block of text into `\l@d@nums`.

One instance of `\edtext` may generate several notes, or it may generate none — it is legitimate for argument #2 to `\edtext` to be empty. But `\flag@start` and `\flag@end` induce the generation of a single entry in `\line@list` during the next run, and it is vital to also remove one and only one `\line@list` entry here.

If no more lines are listed in `\line@list`, something is wrong — probably just some change in the input. We set all the numbers to zeros, following an old publishing convention for numerical references that have not yet been resolved.

```

1398 \newcommand*{\set@line}{%
1399   \ifledRcol
1400     \ifx\line@listR\empty
1401       \global\noteschanged@true
1402       \xdef\l@d@nums{000|000|000|000|000|000|\edfont@info}%
1403     \else
1404       \gl@p\line@listR\to\@tempb
1405       \xdef\l@d@nums{\@tempb|\edfont@info}%
1406       \global\let\@tempb=\undefined
1407     \fi
1408   \else
1409     \ifx\line@list\empty
1410       \global\noteschanged@true
1411       \xdef\l@d@nums{000|000|000|000|000|000|\edfont@info}%
1412     \else
1413       \gl@p\line@list\to\@tempb
1414       \xdef\l@d@nums{\@tempb|\edfont@info}%
1415       \global\let\@tempb=\undefined
1416     \fi
1417   \fi}%
1418
1419 %

```

`\edfont@info` The macro `\edfont@info` returns coded information about the current font.

```
1420 \newcommand*{\edfont@info}{\f@encoding/\f@family/\f@series/\f@shape}
1421
1422 %
```

## VI.2 Substitute lemma

`\lemma` The `\lemma{<text>}` macro allows you to change the lemma that is passed on to the notes. Read about `\@tag` in normal `\edtext` macro for more details about `\sw@list@inedtext` and `\no@expands` (VI.1 p. 110).

```
1423 \newcommand*{\lemma}[1]{%
1424   \global\@lemmacommand@true%
1425   \global\renewcommand{\@tag}{%
1426     \no@expands #1%
1427   }%
1428   \ignorespaces%
1429 }%
1430 %
```

`\@lemma` The `\@lemma` is written in the numbered file to set which `\edtext` has an `\lemma` as second argument.

```
1431 \newcommand{\@lemma}{%
1432   \booltrue{lemmacommand@the\@edtext@level}%
1433 }%
1434 %
```

`\if@lemmacommand@` This boolean is set to TRUE inside a `\edtext` (or `\critext`) when a `\lemma` command is called. That is useful for some commands which can have a different behavior if the lemma in the note is different from the lemma in the main text.

```
1435 \newif\if@lemmacommand@%
1436 %
```

## VI.3 Substitute line numbers

`\linenum` The `\linenum` macro can change any or all of the page and line numbers that are passed on to the notes.

As argument `\linenum` takes a set of seven parameters separated by vertical bars, in the format used internally for `\l@d@nums` (see V.9 p. 85): the starting page, line, and sub-line numbers, followed by the ending page, line, and sub-line numbers, and then the font specifier for the lemma. However, you can omit any parameters you do not want to change, and you can omit a string of vertical bars at the end of the argument. Hence `\linenum{18|4|0|18|7|1|0}` is an invocation that changes all the parameters, but `\linenum{|3}` only changes the starting line number, and leaves the rest unaltered.

We use `\\` as an internal separator for the macro parameters.

```

1437 \newcommand*{\linenum}[1]{%
1438   \xdef\@tempa{#1} \noexpand\\l@d@nums}%
1439   \global\let\l@d@nums=\empty
1440   \expandafter\line@set\@tempa\\\ignorespaces}
1441 %

```

**\line@set** \linenum calls \line@set to do the actual work; it looks at the first number in the argument to \linenum, sets the corresponding value in \l@d@nums, and then calls itself to process the next number in the \linenum argument, if there are more numbers in \l@d@nums to process.

```

1442 \def\line@set#1|#2|#3|#4|{%
1443   \gdef\@tempb{#1}%
1444   \ifx\@tempb\empty
1445     \l@d@add{#3}%
1446   \else
1447     \l@d@add{#1}%
1448   \fi
1449   \gdef\@tempb{#4}%
1450   \ifx\@tempb\empty\else
1451     \l@d@add{|}\line@set#2|#4|}%
1452   \fi}
1453 %

```

**\l@d@add** \line@set uses \l@d@add to tack numbers or vertical bars onto the right hand end of \l@d@nums.

```

1454 \newcommand{\l@d@add}[1]{\xdef\l@d@nums{\l@d@nums#1}}
1455
1456 %

```

## VI.4 Lemma disambiguation

The mechanism which counts the occurrence of a same word in a same line is quite complex, because, when  $\text{\LaTeX}$  reads a command between a `\pstart` and a `\pend`, it does not know yet which are the line numbers.

The general mechanism is the following:

- **At the first run**, each `\sameword` command increments an `etoolbox` counter the name of which contains the argument of the `\sameword` commands.
- Then this counter, associated with the argument of `\sameword` is stored, with the `\@sw` command, in the auxiliary file of the current `eledmac` section (the `.1`, `.2...` file).
- **When this auxiliary file is read at the second run**, different operations are achieved:
  1. Get the rank of each `\sameword` in a line (relative rank) from the rank of each `\sameword` in all the numbered section (absolute rank):

- For each paired `\sameword` argument and absolute line number, a counter is defined. Its value corresponds to the number of times `\sameword{⟨argument⟩}+` is called from the beginning of the lineation to the end of the current line. We also store the same data for the preceding absolute line number, if it does not have `\sameword{⟨argument⟩}`.
- For each `\sameword` having the same argument, we subtract from its absolute rank the number stored for the paired `\sameword` argument and previous absolute line number. Consequently, we obtain the relative rank.
- See the following example which explain how for same `\sameword` absolute ranks are transformed to relative rank.

```
At line 1:
absolute rank 1 becomes relative rank 1-0 = 1
1 is stored for this \sameword and the line 1
At line 2:
absolute rank 2 becomes relative rank 2-1 = 1
absolute rank 3 becomes relative rank 3-2 = 2
3 is stored for this \sameword and the line 2
At line 3:
no \sameword for this line.
3 is stored for this \sameword and the line 3
At line 4:
absolute rank 4 becomes relative rank 4-3 = 1
3 is stored for this \sameword and the line 4
```

2. Create lists of lists of `\sameword` by depth of `\edtext`. That is: create a list for `\edtext` of level 1, a list for `\edtext` of level 2, a list for `\edtext` of level 3 etc. For each `\edtext` in these list, we store all the relative rank of `\saweword` which are called as lemma information, that is 1) or called in the first argument of `\sameword` 2) or called in the `\lemma` macro of the second argument of `\sameword` AND marked by the optional argument of `\saweword` in first argument of `\edtext`.

For example, suppose a line with nested `\edtexts` which contains some word marked by `\sameword` and having the following relative rank:

bar<sup>1</sup> foo<sup>1</sup> foo<sup>2</sup> bar<sup>2</sup> foo<sup>3</sup> (A)(B) foo<sup>4</sup> bar<sup>3</sup> (C) foo<sup>5</sup> (D) bar<sup>4</sup> (E)

In this example, all lemma information for `\edtext` is framed. The text in parenthesis is the content of critical notes associated to the preceding frame. As you can see, we have two level of `\edtext`.

The list for `\edtexts` of level 1 is  $\{\{1, 2, 2, 3, 4, 3\}, \{5, 4\}\}$ .

The list for `\edtexts` of level 2 is  $\{\{1, 2, 2, 3\}, \{5\}\}$ .

As you can see, the mandatory argument of `\sameword` does not matter: we store the rank informations for every word potentially ambiguous.

- At the second run, when a critical notes is called, we associate it to the next item of the list associated to is `\edtext` level. So, in the previous example:

- Critical notes (A) and (B) are associated with  $\{1, 2, 2, 3\}$ .
- Critical note (C) is associated with  $\{1, 2, 2, 3, 4, 3\}$ .
- Critical note (D) is associated with  $\{5\}$ .
- Critical note (E) is associated with  $\{5, 4\}$ .
- At the second run, when a critical note is printed:
  - The `\sameword` command is let `\sameword@inedtext`.
  - At each call of this `\sameword@inedtext`, we step to the next element of the list associated to the note. Let it be  $r$ .
  - For the word marked by `\sameword`, we calculate how many time it is called in its line. To do it:
    - \* We get the absolute line number of the current `\sameword`. This absolute line number was stored with list of relative rank for the current `\edtext`. That means, in the previous example, that, if the absolute line number of `\edtext` was 1, that critical notes (A) and (B) were not associated with  $\{1, 2, 2, 3\}$  but with  $\{(1, 1), (2, 1), (2, 1), (3, 1)\}$ . Such method to know the absolute line number associated to a `\sameword` is required because a `\edtext` can be overlap many lines, but `\sameword` can't get it.
    - \* We get the value associated, when reading the auxiliary file, to the pair compose by the current marked word and the current absolute line number. Let this value be  $n$ .
  - If  $n > 1$ , that mean the current word appears more than once time in its line. In this case, we call `\showwordrank` with the word as first argument and  $r$  as second argument. If the word is called only once, we just print it.

After theory, implementation.

`\get@sw@txt` As the argument of `\sameword` can contain active character if we use `inputenc` with `utf8` option instead of native UTF-8 engine, we store its detokenized content in a macro in order to allow dynamic name of macro with `\csname`.<sup>27</sup>

Because there is a bug with `\detokenize` and  $\text{\LaTeX}$  when using non BMP characters<sup>28</sup>, we detokenize only for not  $\text{\LaTeX}$  engines. In any case, in  $\text{\LaTeX}$ , a `\csname` construction can contain UTF-8 characters without a problem, as UTF-8 characters are not managed with category code, but instead read directly as UTF-8 characters.

```

1457 \newcommand{\get@sw@txt}[1]{%
1458   \ifxetex%
1459     \xdef\sw@txt{#1}%
1460   \else%
1461     \expandafter\xdef\expandafter\sw@txt\expandafter{\detokenize{#1}}%
1462   \fi%
1463 }%
1464 %

```

<sup>27</sup>See <http://tex.stackexchange.com/q/244538/7712>.

<sup>28</sup><http://sourceforge.net/p/xetex/bugs/108/>

**\sameword** The high level macro \sameword, used by the editor.

```
1465 \newcommand{\sameword}[2][1,usedefault]{%
1466     \leavevmode%
1467     \get@sw@txt{#2}%
1468 }
```

Now, the real code. First, increment the counter corresponding to the argument.

```
1469 \unless\ifledRcol%
1470     \csnumgdef{sw@sw@txt}{\csuse{sw@sw@txt}+1}%
1471 %
```

Then, write its value to the numbered file.

```
1472     \protected@write\linenum@out{}{\string\@sw{sw@txt}{\csuse{sw@sw@txt}
1473 }}{#1}}%
1474 %
```

Do the same thing if we are in the right columns.

```
1474 \else%
1475     \csnumgdef{sw@sw@txt}{\csuse{sw@sw@txt}+1}%
1476     \protected@write\linenum@outR{}{\string\@sw{sw@txt}{\csuse{sw@sw@txt}
1477 }}{#1}}%
1478 \fi%
1479 %
```

And print the word.

```
1479     #2%
1480 }%
1481 %
```

A flag set to true if a \@sw relative rank must be added to the list of ranks for a specific \edtext.

```
\if@addsw82 \newif\if@addsw%
1483 %
```

**\@sw** The command printed in the auxiliary files.

```
1484 \newcommand{\@sw}[3]{%
1485     \get@sw@txt{#1}%
1486     \unless\ifledRcol%
1487 %
```

First, define a counter which store the second argument as value for a each paired absolute line number/first argument

```
1488     \csxdef{sw@sw@txt @\the\absline@num @\the\section@num}{#2}%
1489 %
```

If such argument was not defined for the preceding line, define it.

```

1490 \numdef{\prev@line}{\the\absline@num-1}%
1491 \ifcsundef{sw@sw@txt @\prev@line @\the\section@num}{%
1492   \csnumgdef{sw@sw@txt @\prev@line @\the\section@num}{#2-1}%
1493   }{}%
1494 %

```

Then, calculate the position of the word in the line.

```

1495 \numdef{\the@sw}{#2-\csuse{sw@sw@txt @\prev@line @\the\section@num}}%
1496 %

```

And do the same thing for the right side.

```

1497 \else%
1498   \csxdef{sw@sw@txt @\the\absline@numR @\the\section@numR @R}{#2}%
1499   \numdef{\prev@line}{\the\absline@numR-1}%
1500   \ifcsundef{sw@sw@txt @\prev@line @\the\section@numR @R}{%
1501     \csnumgdef{sw@sw@txt @\prev@line @\the\section@numR @R}{#2-1}%
1502     }{}%
1503   \numdef{\the@sw}{#2-\csuse{sw@sw@txt @\prev@line @\the\section@numR @R}}%
1504   \fi%
1505 %

```

And now, add it to the list of \@sw for the current edtext, in all depth.

```

1506 \@tempcnta=\@edtext@level
1507 \@whilenum{\@tempcnta>0}\do{%
1508   \ifcsdef{sw@list@edtext@tmp@\the\@tempcnta}%
1509   {%
1510     \@addswfalse%
1511     \notbool{lemmacommand@\the\@tempcnta}%
1512     {\@addswtrue}%
1513     {\IfStrEq{#3}{inlemma}%
1514      {\@addswtrue}%
1515      {%
1516        \def\do##1{%
1517          \ifnumequal{##1}{\the\@tempcnta}%
1518          {\@addswtrue\listbreak}%
1519          }%
1520        }%
1521        \docsvlist{#3}%
1522      }%
1523    }%
1524    \if@addsw%
1525      \letcs{\@tmp}{sw@list@edtext@tmp@\the\@tempcnta}%
1526      \ifledRcol%
1527        \xright@appenditem{\the@sw}{\the\absline@numR}}\to\@tmp%
1528      \else%
1529        \xright@appenditem{\the@sw}{\the\absline@num}}\to\@tmp%
1530      \fi%
1531      \cslet{sw@list@edtext@tmp@\the\@tempcnta}{\@tmp}%

```

```

1532         \fi%
1533     }%
1534 }%
1535 \advance\@tempcnta by -1%
1536 }%
1537 }%
1538 %

```

`\sameword@inedtext` The command called when `\sameword` is called in a `\edtext`.

```

1539 \newcommandx{\sameword@inedtext}[2][1,usedefault]{%
1540     \get@sw@txt{#2}%
1541     \unless\ifledRcol@%
1542 %

```

Just a precaution.

```

1543     \ifx\sw@list@inedtext\empty%
1544         \def\the@sw{999}%
1545         \def\this@absline{-99}%
1546     \else%
1547 %

```

But in many cases, at this step, we should have some content in the list `\sw@list@inedtext`, which contains the reference for `\edtext`.

```

1548         \gl@p\sw@list@inedtext\to\@tmp%
1549         \edef\the@sw{\expandafter\@firstoftwo\@tmp}%
1550         \edef\this@absline{\expandafter\@secondoftwo\@tmp}%
1551     \fi%
1552 %

```

First, calculate the number of occurrences of the word in the current line

```

1553     \ifcsdef{sw@\sw@txt @\this@absline @\the\section@num}{%
1554         \numdef{\prev@line}{\this@absline-1}%
1555         \numdef{\sw@atthisline}{\csuse{sw@\sw@txt @\this@absline @\the\
section@num}-\csuse{sw@\sw@txt @\prev@line @\the\section@num}}%
1556     }%
1557     {\numdef{\sw@atthisline}{0}}%
1558 %

```

Finally, print the rank, but only if there is more than one occurrence of the word in the current line.

```

1559         \ifnumgreater{\sw@atthisline}{1}%
1560             {\showwordrank{#2}{\the@sw}}%
1561             {#2}%
1562 %

```

And the same for right side.

```

1563     \else%
1564         \ifx\sw@list@inedtext\empty%

```



```

1565 \def\the@sw{999}%
1566 \def\this@absline{-99}%
1567 \else%
1568 \gl@p\sw@list@inedtext\to\@tmp%
1569 \edef\the@sw{\expandafter\@firstoftwo\@tmp}%
1570 \edef\this@absline{\expandafter\@secondoftwo\@tmp}%
1571 \fi%
1572 \ifcsdef{sw\sw@txt @\this@absline @\the\section@numR @R}{%
1573 \numdef{\prev@line}{\this@absline-1}%
1574 \numdef{\sw@atthisline}{\csuse{sw\sw@txt @\this@absline @\the\
section@numR @R}-\csuse{sw\sw@txt @\prev@line @\the\section@numR @R}}%
1575 }%
1576 {\numdef{\sw@atthisline}{0}}%
1577 \ifnumgreater{\sw@atthisline}{1}%
1578 {\showwordrank{#2}{\the@sw}}%
1579 {#2}%
1580 \fi%
1581 }%
1582 %

```

```

\showwordrank83 % Finally, the way the rank will be printed.

```

```

1584 \newcommand{\showwordrank}[2]{%
1585 #1\textsuperscript{#2}%
1586 }%
1587 %

```

## VII Paragraph decomposition and reassembly

In order to be able to count the lines of text and affix line numbers, we add an extra stage of processing for each paragraph. We send the paragraph into a box register, rather than straight onto the vertical list, and when the paragraph ends we slice the paragraph into its component lines; to each line we add any notes or line numbers, add a command to write to the line-list, and then at last send the line to the vertical list. This section contains all the code for this processing.

### VII.1 Boxes, counters, \pstart and \pend

```

\raw@text Here are numbers and flags that are used internally in the course of the paragraph de-
\ifnumberedpar@ composition.
\numberedpar@true When we first form the paragraph, it goes into a box register, \raw@text, instead
\numberedpar@false of onto the current vertical list. The \ifnumberedpar@ flag will be true while a para-
\num@lines graph is being processed in that way. \num@lines will store the number of lines in the
\one@line paragraph when it is complete. When we chop it up into lines, each line in turn goes
\par@line into the \one@line register, and \par@line will be the number of that line within the
paragraph.

```

```

1588 \newbox\raw@text
1589 \newif\ifnumberedpar@
1590 \newcount\num@lines
1591 \newbox\one@line
1592 \newcount\par@line
1593 %

```

`\pstart` starts the paragraph by clearing the `\inserts@list` list and other relevant variables, and then arranges for the subsequent text to go into the `\raw@text` box. `\AtEveryPstart` `\pstart` needs to appear at the start of every paragraph that is to be numbered; the `\numberstarttrue` `\pstart` command below may be used to insert these commands automatically. `\numberstartfalse` Beware: everything that occurs between `\pstart` and `\pend` is happening within a group; definitions must be global if you want them to survive past the end of the paragraph. `\labelstarttrue` `\thePstart`

```

1594
1595 \newcommand{\AtEveryPstart}[1]{%
1596   \ifstrempy{#1}%
1597   {\xdef\at@every@pstart{}}%
1598   {\gdef\at@every@pstart{\noindent#1}}%
1599 }%
1600 \xdef\at@every@pstart{}%
1601
1602 \newcounter{pstart}
1603 \renewcommand{\thePstart}{\bfseries\@arabic\c@pstart}. }
1604 \newif\ifnumberpstart
1605 \numberpstartfalse
1606 \newif\iflabelpstart
1607 \labelpstartfalse
1608 \newcommand*{\pstart}[1][1]{%
1609   \normal@pars%
1610   \ifstrempy{#1}{\at@every@pstart}{\noindent#1}%
1611   \ifautopar%
1612     \autopar%
1613   \fi%
1614   \ifluatex%
1615     \edef\l@luatexttextdir@L{\the\textdir}%
1616   \fi%
1617   \if@nobreak%
1618     \let\@oldnobreak\@nobreaktrue%
1619   \else%
1620     \let\@oldnobreak\@nobreakfalse%
1621   \fi%
1622   \@nobreaktrue%
1623   \ifnumbering \else%
1624     \led@err@PstartNotNumbered%
1625     \beginnumbering%
1626   \fi%
1627   \ifnumberedpar@%

```

```

1628 \led@err@PstartInPstart%
1629 \pend%
1630 \fi%
1631 \list@clear{\inserts@list}%
1632 \global\let\next@insert=\empty%
1633 \begingroup\normal@pars%
1634 \global\advance \l@dnumpstartsL\@ne
1635 \global\setbox\raw@text=\vbox\bgroup%
1636 \ifautopar\else%
1637 \ifnumberpstart%
1638 \ifinstanza\else%
1639 \ifsidepstartnum\else%
1640 \thepstart%
1641 \fi%
1642 \fi%
1643 \fi%
1644 \fi%
1645 \numberedpar@true%
1646 \iflabelpstart\protected@edef\@currentlabel%
1647 {\p@pstart\thepstart}
1648 \fi%
1649 \l@dzeropenalties%
1650 \ignorespaces%because not automatically ignored if an optional argument
is used (classical TeX behavior for space after commands)
1651 }
1652 %

```

**\pend** \pend must be used to end a numbered paragraph.

```

1653 \newcommandx*{\pend}[1][1]{\ifnumbering \else%
1654 \led@err@PendNotNumbered%
1655 \fi%
1656 \global\l@dskipversenumberfalse%
1657 \ifnumberedpar@ \else%
1658 \led@err@PendNoPstart%
1659 \fi%
1660 %

```

We set all the usual interline penalties to zero and then immediately call `\endgraf` to end the paragraph; this ensures that there will be no large interline penalties to prevent us from slicing the paragraph into pieces. These penalties revert to the values that you set when the group for the `\vbox` ends. Then we call `\do@line` to slice a line off the top of the paragraph, add a line number and footnotes, and restore it to the page; we keep doing this until there are not any more lines left.

```

1661 \l@dzeropenalties%
1662 \endgraf\global\num@lines=\prevgraf\egroup%
1663 \global\par@line=0%
1664 %

```

We check if lineation is by pstart: in this case, we reset line number, but only in the second line of the pstart. We can't reset line number at the beginning of \pstart, as \setline is parsed at the end of previous \pend, and so, we must do it at the end of first line of pstart.

```

1665 \csnumdef{pstartline}{0}%
1666 \loop\ifvbox\raw@text%
1667   \csnumdef{pstartline}{\pstartline+1}%
1668   \do@line%
1669   \ifbypstart@%
1670     \ifnumequal{\pstartline}{1}{%
1671       \bgroup%
1672       \let\leavevmode\relax%
1673       \setline{1}%
1674       \egroup%
1675       \resetprevline@}{}%
1676     \fi%
1677   \repeat%
1678 %

```

Deal with any leftover notes, and then end the group that was begun in the \pstart.

```

1679 \flush@notes%
1680 \endgroup%
1681 \ignorespaces%
1682 %

```

Increase pstart counter.

```

1683 \ifnumberpstart%
1684   \pstartnumtrue%
1685 \fi%
1686 \addtocounter{pstart}{1}%
1687 %

```

Restore paragraph, nobreak setting and autopar setting.

```

1688 \normal@pars%
1689 \@oldnobreak%
1690 \ifautopar%
1691   \autopar%
1692 \fi%
1693 %

```

Print the optional argument of \pend or the content printed after every \pend

```

1694 \ifstrempy{#1}{\at@every@pend}{\noindent#1}%
1695 }
1696
1697 %

```

Here, two macros to insert content after every \pend, between numbered line. \AtEveryPend is the user macro, \at@every@pend is macro set by it.

```

\AtEveryPend%
\at@every@pend%
1700 \ifstrempy{#1}%
1701 {\xdef\at@every@pend{}}%
1702 {\gdef\at@every@pend{\noindent#1}}%
1703 }%
1704 \xdef\at@every@pend{}%
1705
1706 %

```

**\l@dzzeropenalties** A macro to zero penalties for \pend or \pstart.

```

1707 \newcommand*\l@dzzeropenalties{%
1708 \brokenpenalty \z@ \clubpenalty \z@
1709 \displaywidowpenalty \z@ \interlinepenalty \z@ \predisplaypenalty \z@
1710 \postdisplaypenalty \z@ \widowpenalty \z@}
1711
1712 %

```

**\autopar** In most cases it is only an annoyance to have to label the paragraphs to be numbered with \pstart and \pend. \autopar will do that automatically, allowing you to start a paragraph with its first word and no other preliminaries, and to end it with a blank line or a \par command. The command should be issued within a group, after \beginnumbering has been used to start the numbering; all paragraphs within the group will be affected.

A few situations can cause problems. One is a paragraph that begins with a begin-group character or command: \pstart will not get invoked until after such a group beginning is processed; as a result the character that ends the group will be mistaken for the end of the \vbox that \pstart creates, and the rest of the paragraph will not be numbered. Such paragraphs need to be started explicitly using \indent, \noindent, or \leavevmode — or \pstart, since you can still include your own \pstart and \pend commands even with \autopar on.

Prematurely ending the group within which \autopar is in effect will cause a similar problem. You must either leave a blank line or use \par to end the last paragraph before you end the group.

The functioning of this macro is more tricky than the usual \everypar: we do not want anything to go onto the vertical list at all, so we have to end the paragraph, erase any evidence that it ever existed, and start it again using \pstart. We remove the paragraph-indentation box using \lastbox and save the width, and then skip backwards over the \parskip that has been added for this paragraph. Then we start again with \pstart, restoring the indentation that we saved, and locally change \par so that it will do our \pend for us.

```

1713 \newif\ifautopar
1714 \autoparfalse
1715 \newcommand*\autopar{%
1716 \ifledRcol
1717 \ifnumberingR \else

```

```

1718 \led@err@AutoparNotNumbered
1719 \beginnumberingR
1720 \fi
1721 \else
1722 \ifnumbering \else
1723 \led@err@AutoparNotNumbered
1724 \beginnumbering
1725 \fi
1726 \fi
1727 \autopartrue
1728 \everypar{\setbox0=\lastbox
1729 \endgraf \vskip-\parskip
1730 \pstart \noindent \kern\wd0 \ifnumberpstart\ifinstanza\else\thepstart\
1731 \fi\fi
1732 \let\par=\pend}%
1733 \ignorespaces}
1734 %

```

**\normal@pars** We also define a macro which we can rely on to turn off the `\autopar` definitions at various important places, if they are in force. We will want to do this within a footnotes, for example.

```

1734 \newcommand*{\normal@pars}{\everypar{} \let\par\endgraf}
1735
1736 %

```

**\ifautopar@pause** We define a boolean test switched to true at the beginning of the `\pausenumbering` command if the autopar is enabled. This boolean will be tested at the beginning of `\resumenumbering` to continue the autopar if needed.

```

1737 \newif\ifautopar@pause
1738 %

```

## VII.2 Processing one line

### VII.2.1 General process

**\do@line** The `\do@line` macro is called by `\pend` to do all the processing for a single line of text.

**\l@dunhbox@line**

```

1739 \newcommand*{\l@dunhbox@line}[1]{\unhbox #1}
1740 \newcommand*{\do@line}{%
1741 {\vbadness=10000
1742 \splittopskip=\z@
1743 \do@linehook
1744 \l@emptyd@ta
1745 \global\setbox\one@line=\vsplit\raw@text to\baselineskip}%
1746 \unvbox\one@line \global\setbox\one@line=\lastbox
1747 \getline@num
1748 \IfStrEq{\led@pb@setting}{before}{\led@check@pb\led@check@nopb}{}}

```

```

1749 \ifnum\@lock>\@ne
1750   \inserthangingsymboltrue
1751 \else
1752   \inserthangingsymbolfalse
1753 \fi
1754 \check@pb@in@verse
1755 \ifl@dhiddenumber%
1756   \global\l@dhiddenumberfalse%
1757   \f@x@l@cks%
1758 \else%
1759   \affixline@num%
1760 \fi%
1761 %

```

Depending whether a sectioning command is called at this pstart or not we print sectioning command or normal line,

```

1762 \xifinlist{\the\l@dnumstartsl}{\eled@sections@@}%
1763   {\print@eledsection}%
1764   {\print@line}%
1765 \IfStrEq{\led@pb@setting}{after}{\led@check@pb\led@check@nopb}{\}
1766 }%
1767 %

```

### VII.2.2 Process for “normal” line

`\print@line` `\print@line` is for normal line, i. e. line without sectioning command.

```

1768 \def\print@line{
1769 %

```

Insert the pstart number in side, if we are in the first line of a pstart.

```

1770   \affixpstart@num%
1771 %

```

The line will be boxed, to have the good width.

```

1772   \hb@xt@ \linewidth{
1773 %

```

User hook.

```

1774   \do@insidelinehook%
1775 %

```

Left line number

```

1776   \l@dld@ta%
1777 %

```

Restore marginal and footnotes.

```

1778   \add@inserts\affixside@note%
1779 %

```

Print left notes.

```
1780 \l@dlsn@te
1781 %
```

Boxes the line, writes information about new line in the numbered file.

```
1782 {\ledllfill\hb@xt@ \wd\one@line{\new@line%
1783 %
```

If we use Lua<sub>TEX</sub> then restore the direction.

```
1784 \ifluatex%
1785 \textdir\l@luatextextdir@L%
1786 \fi%
1787 %
```

Insert, if needed, the hanging symbol.

```
1788 \inserthangingsymbol %Space kept for backward compatibility
1789 %
```

And so, print the line.

```
1790 \l@dunhbox@line{\one@line}}%
1791 %
```

Right line number

```
1792 \ledrlfill\l@drd@ta%
1793 %
```

Print right notes.

```
1794 \l@drsn@te
1795 }}%
1796 %
```

And reinsert penalties (for page breaking)...

```
1797 \add@penalties%
1798 }
1799 %
```

### VII.2.3 Process for line containing \eledsection command

**\print@eledsection** \print@eledsection to print sectioning command with line number. It sets the correct spacing, depending whether a sectioning command was called at previous \pstart, calls the sectioning command, prints the normal line outside of the paper, to be able to have critical footnotes. Because of how this prints, a vertical spacing correction is added.

```
1800 \def\print@eledsection{%
1801 \add@inserts\affixside@note%
1802 \numdef{\temp@}{\l@dnumstartsL-1}%
1803 \xifinlist{\temp@}{\eled@sections@@}{\@nobreaktrue}{\@nobreakfalse}%
1804 \@eled@sectioningtrue%
```



```

1805 \csuse{eled@sectioning@the\l@dumpstartsL}%
1806 \@eled@sectioningfalse%
1807 \global\csundef{eled@sectioning@the\l@dumpstartsL}%
1808 \if@RTL%
1809 \hspace{-3\paperwidth}%
1810 {\hbox{\l@dunhbox@line{\one@line}} \new@line}%
1811 \else%
1812 \hspace{3\paperwidth}%
1813 {\new@line \hbox{\l@dunhbox@line{\one@line}}}%
1814 \fi%
1815 \vskip-\baselineskip%
1816 }
1817 %

```

### VII.2.4 Hooks

`\do@linehook` Two hooks into `\do@line`. The first is called at the beginning of `\do@line`, the second  
`\do@insidelinehook` is called in the line box. The second can, for example, have a `\markboth` command  
inside, the first can not.

```

1818 \newcommand*{\do@linehook}{}
1819 \newcommand*{\do@insidelinehook}{}
1820 %

```

`\dolinehook` These high level commands just redefine the low level commands. They have to be used  
`\doinsidelinehook` be user, without `\makeatletter`.

```

1821 \newcommand*{\dolinehook}[1]{\gdef\do@linehook{#1}}%
1822 \newcommand*{\doinsidelinehook}[1]{\gdef\do@insidelinehook{#1}}%
1823
1824 %

```

### VII.2.5 Sidenotes and marginal line number initialization

`\l@emptyd@ta` Nulls the `\l@emptyd@ta`, which may later hold line numbers. Similarly for `\l@dcsnotetext`,  
`\l@dld@ta` `\l@dcsnotetext@l`, `\l@dcsnotetext@r` for the texts of the sidenotes, left and right  
`\l@drd@ta` notes.

```

\l@dcsnotetext
1825 \newcommand*{\l@emptyd@ta}{%
\l@dcsnotetext@l
1826 \gdef\l@dld@ta{}%
\l@dcsnotetext@r
1827 \gdef\l@drd@ta{}%
1828 \gdef\l@dcsnotetext@l{}%
1829 \gdef\l@dcsnotetext@r{}%
1830 \gdef\l@dcsnotetext{}%
1831
1832 %

```

`\l@dlsn@te` Zero width boxes of the left and right side notes, together with their kerns.  
`\l@drrsn@te`

```

1833 \newcommand{\l@dlsn@te}{%
1834   \hb@xt@ \z@{\hss\box\l@dlp@rbox\kern\ledlsnotese}}
1835 \newcommand{\l@drsn@te}{%
1836   \hb@xt@ \z@{\kern\ledrsnotese\box\l@drp@rbox\hss}}
1837
1838 %

```

**\ledllfill** These macros are called at the left (**\ledllfill**) and the right (**\ledllfill**) of each numbered line. The initial definitions correspond to the original code for **\do@line**.

```

1839 \newcommand*{\ledllfill}{\hfil}
1840 \newcommand*{\ledrlfill}{\hfil}
1841
1842 %

```

## VIII Line and page number computation

**\getline@num** The **\getline@num** macro determines the page and line numbers for the line we are about to send to the vertical list.

```

1843 \newcommand*{\getline@num}{%
1844   \global\advance\absline@num \@ne%
1845   \do@actions
1846   \do@ballast
1847   \ifnumberline
1848     \ifsublines@
1849       \ifnum\sub@lock<\tw@
1850         \global\advance\subline@num \@ne
1851       \fi
1852     \else
1853       \ifnum\@lock<\tw@
1854         \global\advance\line@num \@ne
1855         \global\subline@num \z@
1856       \fi
1857     \fi
1858   \fi
1859 }
1860 %

```

**\do@ballast** The real work in the macro above is done in **\do@actions**, but before we plunge into that, let's get **\do@ballast** out of the way. This macro looks to see if there is an action to be performed on the *next* line, and if it is going to be a page break action, **\do@ballast** decreases the count **\ballast@count** counter by the amount of ballast. This means, in practice, that when **\add@penalties** assigns penalties at this point, TeX will be given extra encouragement to break the page here (see XI.2 p. 140).

**\ballast@count** First we set up the required counters; they are initially set to zero, and will remain so unless you type **\setcounter{ballast}{*some figure*}** in your document.

**\c@ballast**

```

1861 \newcount\ballast@count
1862 \newcounter{ballast}
1863 \setcounter{ballast}{0}
1864 %

```

And here is `\do@ballast` itself. It advances `\absline@num` within the protection of a group to make its check for what happens on the next line.

```

1865 \newcommand*{\do@ballast}{\global\ballast@count \z@
1866 \begingroup
1867 \advance\absline@num \@ne
1868 \ifnum\next@actionline=\absline@num
1869 \ifnum\next@action>-1001\relax
1870 \global\advance\ballast@count by -\c@ballast
1871 \fi
1872 \fi
1873 \endgroup}
1874 %

```

`\do@actions` The `\do@actions` macro looks at the list of actions to take at particular absolute line numbers, and does everything that is specified for the current line.

It may call itself recursively, and to do this efficiently (using  $\text{\TeX}$ 's optimization for tail recursion), we define a control-sequence called `\do@actions@next` that is always the last thing that `\do@actions` does. If there could be more actions to process for this line, `\do@actions@next` is set equal to `\do@actions`; otherwise it is just `\relax`.

```

1875 \newcommand*{\do@actions}{%
1876 \global\let\do@actions@next=\relax
1877 \ifnum\absline@num<\next@actionline\else
1878 %

```

First, page number changes, which will generally be the most common actions. If we are restarting lineation on each page, this is where it happens.

```

1879 \ifnum\next@action>-1001
1880 \global\page@num=\next@action
1881 \ifbypage@
1882 \global\line@num=\z@ \global\subline@num=\z@
1883 \resetprevline@
1884 \fi
1885 %

```

Next, we handle commands that change the line-number values. (We subtract 5001 rather than 5000 here because the line number is going to be incremented automatically in `\getline@num`.)

```

1886 \else
1887 \ifnum\next@action<-4999
1888 \@l@dtmpcnta=-\next@action
1889 \advance\@l@dtmpcnta by -5001
1890 \ifsublines@

```

```

1891     \global\subline@num=\@l@tempcnta
1892     \else
1893     \global\line@num=\@l@tempcnta
1894     \fi
1895 %

```

We rescale the value in \@l@tempcnta so that we can use a case statement.

```

1896     \else
1897     \@l@tempcnta=-\next@action
1898     \advance\@l@tempcnta by -1000
1899     \do@actions@fixedcode
1900     \fi
1901 \fi
1902 %

```

Now we get information about the next action off the list, and then set \do@actions@next so that we will call ourself recursively: the next action might also be for this line.

There is no warning if we find \actionlines@list empty, since that will always happen near the end of the section.

```

1903 \ifx\actionlines@list\empty
1904 \gdef\next@actionline{1000000}%
1905 \else
1906 \gl@p\actionlines@list\to\next@actionline
1907 \gl@p\actions@list\to\next@action
1908 \global\let\do@actions@next=\do@actions
1909 \fi
1910 \fi
1911 %

```

Make the recursive call, if necessary.

```

1912 \do@actions@next}
1913
1914 %

```

`\do@actions@fixedcode` This macro handles the fixed codes for \do@actions. It is one big case statement.

```

1915 \newcommand*{\do@actions@fixedcode}{%
1916 \ifcase\@l@tempcnta
1917 \or% % 1001
1918 \global\sublines@true
1919 \or% % 1002
1920 \global\sublines@false
1921 \or% % 1003
1922 \global\@lock=\@ne
1923 \or% % 1004
1924 \ifnum\@lock=\tw@
1925 \global\@lock=\thr@@
1926 \else
1927 \global\@lock=\z@

```

```

1928 \fi
1929 \or% % 1005
1930 \global\sub@lock=\@ne
1931 \or% % 1006
1932 \ifnum\sub@lock=\tw@
1933 \global\sub@lock=\thr@@
1934 \else
1935 \global\sub@lock=\z@
1936 \fi
1937 \or% % 1007
1938 \l@dskipnumbertrue
1939 \or% % 1008
1940 \l@dskipversenumbertrue%
1941 \or% % 1009
1942 \l@dhiddenumbertrue
1943 \else
1944 \led@warn@BadAction
1945 \fi}
1946
1947
1948 %

```

## IX Line number printing

`\affixline@num` `\affixline@num` just puts a left line number into `\l@dld@ta` or a right line number into `\l@drd@ta` if required.

To determine whether we need to affix a line number to this line, we compute the following:

$$n = \text{int}((\text{linenum} - \text{firstlinenum}) / \text{linenumincrement})$$

$$m = \text{firstlinenum} + (n \times \text{linenumincrement})$$

(where *int* truncates a real number to an integer). *m* will be equal to *linenum* only if we are to paste a number on here. However, the formula breaks down for the first line to number (and any before that), so we check that case separately: if `\line@num ≤ \firstlinenum`, we compare the two directly instead of making these calculations.

We compute, in the scratch counter `\@l@tempcnta`, the number of the next line that should be printed with a number (*m* in the above discussion), and move the current line number into the counter `\@l@tempcntb` for comparison.

First, the case when we are within a sub-line range.

```

1949 \newcommand*{\affixline@num}{%
1950 %

```

No number is attached if `\ifl@dskipnumber` is TRUE (and then it is set to its normal FALSE value). No number is attached if `\ifnumberline` is FALSE (the normal value is TRUE).

```

1951 \ifledgroupnotesL@else

```

```

1952 \ifnumberline
1953   \ifl@dskipnumber
1954     \global\l@dskipnumberfalse
1955   \else
1956     \ifsublines@
1957       \@l@dttempcntb=\subline@num
1958       \ifnum\subline@num>\c@firstsublinenum
1959         \@l@dttempcnta=\subline@num
1960         \advance\@l@dttempcnta by-\c@firstsublinenum
1961         \divide\@l@dttempcnta by\c@sublinenumincrement
1962         \multiply\@l@dttempcnta by\c@sublinenumincrement
1963         \advance\@l@dttempcnta by\c@firstsublinenum
1964       \else
1965         \@l@dttempcnta=\c@firstsublinenum
1966     \fi
1967 %

```

That takes care of computing the values for comparison, but if line number locking is in effect we have to make a further check. If this check fails, then we disable the line-number display by setting the counters to arbitrary but unequal values.

```

1968   \ch@cksub@l@ck
1969 %

```

Now the line number case, which works the same way.

```

1970   \else
1971     \@l@dttempcntb=\line@num
1972 %

```

Check on the `\linenumberlist` If it is `\empty` use the standard algorithm.

```

1973   \ifx\linenumberlist\empty
1974     \ifnum\line@num>\c@firstlinenum
1975       \@l@dttempcnta=\line@num
1976       \advance\@l@dttempcnta by-\c@firstlinenum
1977       \divide\@l@dttempcnta by\c@linenumincrement
1978       \multiply\@l@dttempcnta by\c@linenumincrement
1979       \advance\@l@dttempcnta by\c@firstlinenum
1980     \else
1981       \@l@dttempcnta=\c@firstlinenum
1982     \fi
1983   \else
1984 %

```

The `\linenumberlist` was not `\empty`, so here is Wayne's numbering mechanism. This takes place in  $\mathrm{T}_{\mathrm{E}}\mathrm{X}$ 's mouth.

```

1985   \@l@dttempcnta=\line@num
1986   \edef\rem@inder{\,\linenumberlist,\number\line@num,}%
1987   \edef\sc@n@list{\def\noexpand\sc@n@list
1988     #####1,\number\@l@dttempcnta,####2|{\def\noexpand\rem@inder
{#####2}}}%

```

```

1989         \sc@n@list\expandafter\sc@n@list\rem@inder|}%
1990         \ifx\rem@inder\empty%
1991             \advance\@l@tempcnta\@ne
1992         \fi
1993     \fi
1994 %

```

A locking check for lines, just like the version for sub-line numbers above.

```

1995         \ch@ck@l@ck
1996     \fi
1997 %

```

The following tests are true if we need to print a line number.

```

1998         \ifnum\@l@tempcnta=\@l@tempcntb
1999         \ifl@dskipversenumber\else
2000 %

```

If we got here, we are going to print a line number; so now we need to calculate a number that will tell us which side of the page will get the line number. We start from `\line@margin`, which asks for one side always if it is less than 2; and then if the side does depend on the page number, we simply add the page number to this side code—because the values of `\line@margin` have been devised so that this produces a number that is even for left-margin numbers and odd for right-margin numbers.

For  $\text{\LaTeX}$  we have to consider two column documents as well. In this case Peter Wilson thought we need to put the numbers at the outside of the column — the left of the first column and the right of the second. Do the `twocolumn` stuff before going on with the original code.

`\l@dld@ta` A left line number is stored in `\l@dld@ta` and a right one in `\l@drd@ta`.

```

\l@drd@ta
2001         \if@twocolumn
2002             \if@firstcolumn
2003                 \gdef\l@dld@ta{\llap{\leftlinenum}}}%
2004             \else
2005                 \gdef\l@drd@ta{\rlap{\rightlinenum}}}%
2006             \fi
2007         \else
2008             \@l@tempcntb=\line@margin
2009             \ifnum\@l@tempcntb>\@ne
2010                 \advance\@l@tempcntb \page@num
2011             \fi
2012             \ifodd\@l@tempcntb
2013                 \gdef\l@drd@ta{\rlap{\rightlinenum}}}%
2014             \else
2015                 \gdef\l@dld@ta{\llap{\leftlinenum}}}%
2016             \fi
2017         \fi
2018     \fi
2019 \fi
2020 %

```

Now fix the lock counters, if necessary. A value of 1 is advanced to 2; 3 advances to 0; other values are unchanged.

```

2021     \f@x@l@cks
2022     \fi
2023     \fi
2024     \fi
2025 }
2026
2027 %

```

`\ch@cksub@l@ck` These macros handle line number locking for `\affixline@num`. `\ch@cksub@l@ck`  
`\ch@ck@l@ck` checks subline locking. If it fails, then we disable the line-number display by setting the  
`\f@x@l@cks` counters to arbitrary but unequal values.

```

2028 \newcommand*{\ch@cksub@l@ck}{%
2029     \ifcase\sub@lock
2030     \or
2031         \ifnum\sublock@disp=\@ne
2032             \@l@tempcntb=\z@ \@l@tempcnta=\@ne
2033         \fi
2034     \or
2035         \ifnum\sublock@disp=\tw@ \else
2036             \@l@tempcntb=\z@ \@l@tempcnta=\@ne
2037         \fi
2038     \or
2039         \ifnum\sublock@disp=\z@
2040             \@l@tempcntb=\z@ \@l@tempcnta=\@ne
2041         \fi
2042     \fi}
2043 %

```

Similarly for line numbers.

```

2044 \newcommand*{\ch@ck@l@ck}{%
2045     \ifcase\@lock
2046     \or
2047         \ifnum\lock@disp=\@ne
2048             \@l@tempcntb=\z@ \@l@tempcnta=\@ne
2049         \fi
2050     \or
2051         \ifnum\lock@disp=\tw@ \else
2052             \@l@tempcntb=\z@ \@l@tempcnta=\@ne
2053         \fi
2054     \or
2055         \ifnum\lock@disp=\z@
2056             \@l@tempcntb=\z@ \@l@tempcnta=\@ne
2057         \fi
2058     \fi}
2059 %

```



Fix the lock counters. A value of 1 is advanced to 2; 3 advances to 0; other values are unchanged.

```

2060 \newcommand*{\fx@l@cks}{\%
2061   \ifcase\@lock
2062   \or
2063     \global\@lock=\tw@
2064   \or \or
2065     \global\@lock=\z@
2066   \fi
2067   \ifcase\sub@lock
2068   \or
2069     \global\sub@lock=\tw@
2070   \or \or
2071     \global\sub@lock=\z@
2072   \fi}
2073
2074 %

```

## X Pstart number printing in side

In side, the printing of pstart number is running like the printing of line number. There is only some differences:

- The pstarts counter is upgrade in the `\pend` command. Consequently, the `\affixpstart@num` command has not to upgrade it, unlike the `\affixline@num` which upgrades the lines counter.
- To print the pstart number only at the beginning of a pstart, and not in every line, a boolean test is made. The `\pstartnum` boolean is set to TRUE at every `\pend`. It is tried in the `\leftpstartnum` and `\rightpstartnum` commands. After the try, it is set to FALSE.

```

\leftpstartnum75
\rightpstartnum76 \newif\ifsidepstartnum
\ifsidepstartnum77 \newcommand*{\affixpstart@num}{\%
2078   \ifsidepstartnum
2079     \if@twocolumn
2080       \if@firstcolumn
2081         \gdef\l@dld@ta{\llap{\leftpstartnum}}}%
2082       \else
2083         \gdef\l@drd@ta{\rlap{\rightpstartnum}}}%
2084       \fi
2085     \else
2086       \@l@tempcntb=\line@margin
2087       \ifnum\@l@tempcntb>\@ne
2088         \advance\@l@tempcntb \page@num
2089       \fi

```

```

2090         \ifodd\@l@dttempcntb
2091             \gdef\l@drd@ta{\rlap{{\rightpstartnum}}}%
2092         \else
2093             \gdef\l@dld@ta{\llap{{\leftpstartnum}}}%
2094         \fi
2095     \fi
2096 \fi
2097 }
2098 %
2099
2100
2101 \newif\ifpstartnum
2102 \pstartnumtrue
2103 \newcommand*{\leftpstartnum}{
2104     \ifpstartnum\thepstart
2105     \kern\linenumsep\fi
2106     \global\pstartnumfalse
2107 }
2108 \newcommand*{\rightpstartnum}{
2109     \ifpstartnum
2110     \kern\linenumsep
2111     \thepstart
2112     \fi
2113     \global\pstartnumfalse
2114 }
2115 %

```

## XI Restoring footnotes and penalties

Because of the paragraph decomposition process in order to number line, `reledmac` must hack the standard way  $\TeX$  works in order to manage insertion of footnotes, both critical and familiar.

We need to call the `\insert` commands not when the content of `\pstart...\pend` is read by  $\TeX$  but when each individual line is typeset.

Consequently, when reading the content of `\pstart...\pend`, we store the insertion (footnotes) in an specific `reledmac`'s list, and we restore them to the vertical list when printing each individual line.

### XI.1 Add insertions to the vertical list

`\inserts@list` `\inserts@list` is the list macro that contains the inserts that we save up for one paragraph.

```

2116 \list@create{\inserts@list}
2117 %

```

`\add@inserts` `\add@inserts` is the penultimate macro used by `\do@line`; it takes insertions saved in a list macro and sends them onto the vertical list.

It may call itself recursively, and to do this efficiently (using  $\TeX$ 's optimization for tail recursion), we define a control-sequence called `\add@inserts@next` that is always the last thing that `\add@inserts` does. If there could be more inserts to process for this line, `\add@inserts@next` is set equal to `\add@inserts`; otherwise it is just `\relax`.

```
2118 \newcommand*{\add@inserts}{%
2119   \global\let\add@inserts@next=\relax
2120   %
```

If `\inserts@list` is empty, there are not any more notes or insertions for this paragraph, and we need not waste our time.

```
2121   \ifx\inserts@list\empty \else
2122   %
```

The `\next@insert` macro records the number of the line that receives the next footnote or other insert; it is empty when we start out, and just after we have affixed a note or insert.

```
2123   \ifx\next@insert\empty
2124     \ifx\insertlines@list\empty
2125       \global\noteschanged@true
2126       \gdef\next@insert{100000}%
2127     \else
2128       \gl@p\insertlines@list\to\next@insert
2129     \fi
2130   \fi
2131   %
```

If the next insert's for this line, tack it on (and then erase the contents of the insert macro, as it could be quite large). In that case, we also set `\add@inserts@next` so that we will call ourself recursively: there might be another insert for this same line.

```
2132   \ifnum\next@insert=\absline@num
2133     \gl@p\inserts@list\to\@insert
2134     \@insert
2135     \global\let\@insert=\undefined
2136     \global\let\next@insert=\empty
2137     \global\let\add@inserts@next=\add@inserts
2138   \fi
2139 \fi
2140 %
```

Make the recursive call, if necessary.

```
2141 \add@inserts@next}
2142
2143 %
```

## XI.2 Penalties

`\add@penalties` `\add@penalties` is the last macro used by `\do@line`. It adds up the club, widow, and interline penalties, and puts a single penalty of the appropriate size back into the paragraph; these penalties get removed by the `\vsplit` operation. `\displaywidowpenalty`

and `\brokenpenalty` are not restored, since we have no easy way to find out where we should insert them.

In this code, `\num@lines` is the number of lines in the whole paragraph, and `\par@line` is the line we are working on at the moment. The count `\@l@tempcnta` is used to calculate and accumulate the penalty; it is initially set to the value of `\ballast@count`, which has been worked out in `\do@ballast` above (VIII p. 130). Finally, the penalty is checked to see that it does not go below  $-10000$ .

```

2144 \newcommand*{\add@penalties}{\@l@tempcnta=\ballast@count
2145   \ifnum\num@lines>\@ne
2146     \global\advance\par@line \@ne
2147     \ifnum\par@line=\@ne
2148       \advance\@l@tempcnta \clubpenalty
2149     \fi
2150     \@l@tempcntb=\par@line \advance\@l@tempcntb \@ne
2151     \ifnum\@l@tempcntb=\num@lines
2152       \advance\@l@tempcnta \widowpenalty
2153     \fi
2154     \ifnum\par@line<\num@lines
2155       \advance\@l@tempcnta \interlinepenalty
2156     \fi
2157   \fi
2158   \ifnum\@l@tempcnta=\z@
2159     \relax
2160   \else
2161     \ifnum\@l@tempcnta>-10000
2162       \penalty\@l@tempcnta
2163     \else
2164       \penalty -10000
2165     \fi
2166   \fi}
2167
2168 %

```

### XI.3 Printing leftover notes

`\flush@notes` The `\flush@notes` macro is called after the entire paragraph has been sliced up and sent on to the vertical list. If the number of notes to this paragraph has increased since the previous run of  $\text{\TeX}$ , then there can be leftover notes that have not yet been printed. An appropriate error message will be printed elsewhere; but it is best to go ahead and print these notes somewhere, even if it is not in quite the right place. What we do is dump them all out here, so that they should be printed on the same page as the last line of the paragraph. We can hope that is not too far from the proper location, to which they will move on the next run.

```

2169 \newcommand*{\flush@notes}{%
2170   \@xloop
2171   \ifx\inserts@list\empty \else
2172     \gl@p\inserts@list\to\@insert

```

```

2173 \insert
2174 \global\let\@insert=\undefined
2175 \repeat}
2176
2177 %

```

**\@xloop** \@xloop is a variant of the PLAIN T<sub>E</sub>X \loop macro, useful when it's hard to construct a positive test using the T<sub>E</sub>X \if commands—as in \flush@notes above. One types \@xloop ... \if ... \else ... \repeat, and the action following \else is repeated as long as the \if test fails. (This macro will work wherever the PLAIN T<sub>E</sub>X \loop is used, too, so we could just call it \loop; but it seems preferable not to change the definitions of any of the standard macros.)

This variant of \loop was introduced by Alois Kabsch in *TUGboat* 8 (1987), pp. 184–5.

```

2178 \def\@xloop#1\repeat{%
2179 \def\body{#1\expandafter\body\fi}%
2180 \body}
2181
2182 %

```

## XII Critical footnotes

The footnote macros are adapted from those in PLAIN T<sub>E</sub>X, but they differ in these respects: the outer-level commands must add other commands to a list macro rather than doing insertions immediately; there are many separate levels of the footnotes, not just one; and there are options to reformat footnotes into paragraphs or into multiple columns.

### XII.1 Fonts

Before getting into the details of formatting the notes, we set up some font macros. It is the notes that present the greatest challenge for our font-handling mechanism, because we need to be able to take fragments of our main text and print them in different forms: it is common to reduce the size, for example, without otherwise changing the fonts used.

**\select@lemmafонт** \select@lemmafонт is provided to set the right font for the lemma in a note. This macro extracts the font specifier from the line and page number cluster, and issues the associated font-changing command, so that the lemma is printed in its original font.

```

2183 \def\select@lemmafонт#1|#2|#3|#4|#5|#6|#7|{\select@@lemmafонт#7|}
2184 \def\select@@lemmafонт#1/#2/#3/#4|{%
2185 {\fontencoding{#1}\fontfamily{#2}\fontseries{#3}\fontshape{#4}%
2186 \selectfont}
2187
2188 %

```

## XII.2 Individual note options

`\footnoteoptions@` The `\footnoteoption@[\langle side \rangle]{\langle options \rangle}{\langle value \rangle}` changes the value of on options of Xfootnote, to switch between true and false.

```

2189 \newcommand*{\footnoteoptions@}[3]{%
2190   \def\do##1{%
2191     \ifstrequal{#1}{L}{% In Leftside
2192       \xright@appenditem{\noexpand\setkeys[mac]{#3footnoteoption}{\
2193         unexpanded{##1}}}{\to\inserts@list%
2194       \global\advance\insert@count \@ne% Increment the left insert
2195       counter.
2196     }%
2197     {%
2198       \xright@appenditem{\noexpand\setkeys[mac]{#3footnoteoption}{\
2199         unexpanded{##1}}}{\to\inserts@listR%
2200       \global\advance\insert@countR \@ne% Increment the right insert
2201       counter insert.
2202     }%
2203   }%
2204   \notblank{#2}{\docsvlist{#2}}{}}% Parsing all options
2205 }
2206 %

```

## XII.3 Notes language

`\footnotelang@lua` `\footnotelang@lua` is called to remember the information about the direction of a lemma when Lua<sub>TeX</sub> is used.

```

2203 \newcommand*{\footnotelang@lua}[1][1=L,usedefault]{%
2204   \ifstrequal{#1}{L}{%
2205     \xright@appenditem{\csxdef{footnote@luatextextdir}{\the\textdir}}{\to\
2206     inserts@list%Know the dir of lemma
2207     \global\advance\insert@count \@ne%
2208     \xright@appenditem{\csxdef{footnote@luatexpardir}{\the\pardir}}{\to\
2209     inserts@list%Know the dir of lemma
2210     \global\advance\insert@count \@ne%
2211   }%
2212   {%
2213     \xright@appenditem{\csxdef{footnote@luatextextdir}{\the\textdir}}{\to\
2214     inserts@listR%Know the dir of lemma
2215     \global\advance\insert@countR \@ne%
2216   }%
2217 }

```

`\footnotelang@poly` `\footnotelang@poly` is called to remember the information about the language of a lemma when polyglossia is used.

```

2218 \newcommand*{\footnotelang@poly}[1][1=L,usedefault]{%
2219   \ifstrequal{#1}{L}{%
2220     \if@RTL%
2221       \xright@appenditem{\csxdef{footnote@dir}{@RTLtrue}}{\to\
inserts@list%Know the language used in the lemma
2222         \global\advance\insert@count \@ne%
2223       \else
2224         \xright@appenditem{\csxdef{footnote@dir}{@RTLfalse}}{\to\
inserts@list%Know the language of lemma
2225         \global\advance\insert@count \@ne%
2226       \fi%
2227       \xright@appenditem{\csxdef{footnote@lang}{\expandonce\language\language}}{\to\
inserts@list%Know the language of lemma
2228         \global\advance\insert@count \@ne%
2229     }%
2230   }%
2231   \if@RTL
2232     \xright@appenditem{\csxdef{footnote@dir}{@RTLtrue}}{\to\
inserts@listR%Know the language of lemma
2233       \global\advance\insert@countR \@ne%
2234     \else
2235       \xright@appenditem{\csxdef{footnote@dir}{@RTLfalse}}{\to\
inserts@listR%Know the language of lemma
2236       \global\advance\insert@countR \@ne%
2237     \fi
2238     \xright@appenditem{\csxdef{footnote@lang}{\expandonce\language\language}}{\to\
inserts@listR%Know the language of lemma
2239       \global\advance\insert@countR \@ne%
2240     }%
2241   }
2242   %

```

## XII.4 General survey of the way we manage notes

The processing of each note is done by four principal macros: the `\vfootnote` macro takes the text of the footnote and does the `\insert`; it calls on the `\footfmt` macro to select the right fonts, print the line number and lemma, and do any other formatting needed for that individual note. Within the output routine, the two other macros, `\footstart` and `\footgroup`, are called; the first prints extra vertical space and a footnote rule, if desired; the second does any reformatting of the whole set of the footnotes in this series for this page—such as paragraphing or division into columns—and then sends them to the page.

These four macros, and the other macros and parameters shown here, are distinguished by the ‘series letter’ that indicates which set of the footnotes we are dealing with—A, B, C, D, or E. The series letter always precedes the string `foot` in macro and

parameter names. Hence, for the A series, the four macros are called `\vAfootnote`, `\Afootfmt`, `\Afootstart`, and `\Afootgroup`.

These macros are changed depending of the footnotes arrangement: “normal”, “paragraphed”, “two columns” or “three columns”.

## XII.5 General setup

`\footsplitskips` Some setup code that is common for a variety of the footnotes. The setup is for:

- `\interlinepenalty`.
- `\splittopskip` (skip before last part of notes that flow from one page to another).
- `\splitmaxdepth`.
- `\floatingpenalty`, that is penalty values being added when a long note flows from one page to another. Here, we let it to 0 when we are processing parallel pages in `eledpar`, in order to allow notes to flow from left to right pages and *vice-versa*. Otherwise, we let it to `\@MM`, which is the standard  $\TeX$  `\floatingpenalty`.

```

2243 \newcommand*{\footsplitskips}{%
2244   \interlinepenalty=\interfootnotelinepenalty
2245   \unless\ifl@dprintingpages%
2246     \floatingpenalty=\@MM%
2247   \fi%
2248   \splittopskip=\ht\strutbox \splitmaxdepth=\dp\strutbox
2249   \leftskip=\z@skip \rightskip=\z@skip}
2250
2251 %
```

`\normalfootnoterule` `\normalfootnoterule` is a standard footnote-rule macro, for use by a `footstart` macro: just the same as the PLAIN  $\TeX$  footnote rule.

```

2252 \let\normalfootnoterule=\footnoterule
2253 %
```

## XII.6 Footnotes arrangement

### XII.6.1 User level macro

`\Xarrangement` `\Xarrangement[⟨s⟩]{⟨arrangement⟩}` The command calls, for each series, a specific command which set many counters and commands in order to define specific arrangement.

```

2254 \newcommandx{\Xarrangement}[2][1,usedefault]{%
2255   \def\do##1{%
2256     \csname Xarrangement@#2\endcsname{##1}%
2257   }%
```



```

2258 \ifstrempy{#1}%
2259   {%
2260     \dolistloop{\@series}%
2261   }%
2262   {
2263     \docsvlist{#1}%
2264   }%
2265 }%
2266 %

```

### XII.6.2 Normal footnote

`\Xarrangement@normal` We can now define all the parameters for the series of footnotes; initially they use the “normal” footnote formatting.

What we want to do here is to insert something like the following for each footnote series. (This is an example, not part of the actual `reledmac` code.)

```

\skip\Afootins=12pt plus5pt minus5pt
\count\Afootins=1000
\dimen\Afootins=0.8\vsiz
\let\Afootnote=\normalvfootnote \let\Afootfmt=\normalfootfmt
\let\Afootstart=\normalfootstart \let\Afootgroup=\normalfootgroup
\let\Afootnoterule=\normalfootnoterule

```

(Read *The TeXbook* in order to understand what are the counter, skip and dimen associated to an insertion.)

Instead of repeating ourselves, we define a `\Xarrangement@normal` macro that makes all these assignments for us, for any given series letter. This command is called when people use `\Xarrangement[⟨series⟩]{normal}`

Now we set up the `\Xarrangement@normal` macro itself. It takes one argument: the footnote series letter.

```

2267 \newcommand*{\Xarrangement@normal}[1]{%
2268   \csgdef{series@display#1}{normal}
2269   \expandafter\let\csname #1footstart\endcsname=\normalfootstart
2270   \expandafter\let\csname #1footnote\endcsname=\normalvfootnote
2271   \expandafter\let\csname #1footfmt\endcsname=\normalfootfmt
2272   \expandafter\let\csname #1footgroup\endcsname=\normalfootgroup
2273   \expandafter\let\csname #1footnoterule\endcsname=%
2274                                     \normalfootnoterule
2275   \count\csname #1footins\endcsname=1000
2276   \dimen\csname #1footins\endcsname=\cuse{Xmaxhnotes@#1}
2277   \skip\csname #1footins\endcsname=\cuse{Xbeforenotes@#1}%
2278   \advance\skip\csname #1footins\endcsname by\cuse{Xafterrule@#1}%
2279   %

```

The `reledpar` provides tools in order to confine notes to one side. The mechanism is explained in the `reledpar`’s handbook. For now, just retain we need to store default value of the counter associated to the notes  $\TeX$ ’s inserts.

```

2280 \csxdef{default@#1footins}{1000}%Use this to confine the notes to one
side only
2281 %

```

Now do the setup for minipage footnotes. We use as much as possible of the normal setup as we can (so the notes will have a similar layout).

```

2282 \ifnoledgroup@else%
2283 \expandafter\let\csname mpv#1footnote\endcsname=\mpnormalvfootnote
2284 \expandafter\let\csname mp#1footgroup\endcsname=\mpnormalfootgroup
2285 \count\csname mp#1footins\endcsname=1000
2286 \dimen\csname mp#1footins\endcsname=\csuse{Xmaxhnotes@#1}
2287 \skip\csname mp#1footins\endcsname=\csuse{Xbeforenotes@#1}%
2288 \advance\skip\csname mp#1footins\endcsname by\csuse{Xafterrule@#1}%
2289 \fi
2290 }
2291
2292 %

```

**\normalvfootnote** We now begin a series of commands that do ‘normal’ footnote formatting; a format much like that implemented in PLAIN T<sub>E</sub>X, in which each footnote is a separate paragraph.

**\normalvfootnote** takes the series letter as #1, and the entire text of the footnote is #2. It does the **\insert** for this note, calling on the **\footfmt** macro for this note series to format the text of the note.

```

2293 \notbool{parapparatus@}{\newcommand*}{\newcommand}{\normalvfootnote}[2]{%
2294 \insert\csname #1footins\endcsname\bgroup
2295 \noindent\csuse{Xbhooknote@#1}%
2296 \csuse{Xnotefontsize@#1}%
2297 \footsplitskips
2298 \ifl@dpairing\ifl@dpageing\else%
2299 \setXnoteswidthliketwocolumns@{#1}%
2300 \fi\fi%
2301 \setXnotespositionliketwocolumns@{#1}%
2302 \spaceskip=\z@skip \xspaceskip=\z@skip
2303 \csname #1footfmt\endcsname #2{#1}\egroup}
2304 %

```

**\mpnormalvfootnote** And a somewhat different version for minipages.

```

2305 \notbool{parapparatus@}{\newcommand*}{\newcommand}{\mpnormalvfootnote}[2]{%
2306 \global\setbox\@nameuse{mp#1footins}\vbox{%
2307 \unvbox\@nameuse{mp#1footins}
2308 \noindent\csuse{Xbhooknote@#1}%
2309 \csuse{Xnotefontsize@#1}%
2310 \hsize\columnwidth
2311 \@parboxrestore
2312 \color@begingroup
2313 \csname #1footfmt\endcsname #2{#1}\color@endgroup}}
2314
2315 %

```

`\normalfootfmt` `\normalfootfmt` is a ‘normal’ macro to take the footnote line and page number information (see V.9 p. 85), and the desired text, and output what’s to be printed. Argument #1 contains the line and page number information and lemma font specifier; #2 is the lemma; #3 is the note’s text. This version is very rudimentary—it uses `\printlines` to print just the range of line numbers, followed by a square bracket, the lemma, and the note text.

```

2316
2317
2318 \notbool{parapparatus@}{\newcommand*}{\newcommand}{\normalfootfmt}[4]{%
2319   \Xledsetnormalparstuff{#4}%
2320   \hangindent=\csuse{Xhangindent@#4}
2321   \everypar{\hangindent=\csuse{Xhangindent@#4}}%
2322   \strut{\printlinefootnote{#1}{#4}}%
2323   {\nottoggle{Xlemmadisablefontselection@#4}{\select@lemmafnt#1|#2}{#2}}%
2324   \iftoggle{nosep@}{\hskip\csuse{Xinplaceoflemmaseparator@#4}}{\ifcsemt{
Xlemmaseparator@#4}%
2325     {\hskip\csuse{Xinplaceoflemmaseparator@#4}}%
2326     {\nobreak\hskip\csuse{Xbeforelemmaseparator@#4}\csuse{Xlemmaseparator@
#4}\hskip\csuse{Xafterlemmaseparator@#4}\relax%
2327   }}%
2328   #3\strut\par}
2329 %

```

`\normalfootstart` `\normalfootstart` is a standard footnote-starting macro, called in the output routine whenever there are footnotes of this series to be printed: it skips a bit and then draws a rule.

Any `\footstart` macro must put onto the page something that takes up space exactly equal to the `\skipXfootins` value for the associated series of notes.  $\TeX$  makes page computations based on that `\skip` value, and the output pages will suffer from spacing problems if what you add takes up a different amount of space.

But if the `\skip\preXnotes@` is greater than 0 pt, it is used instead of `\skipXfootins` for the first printed series in one page.

The `\leftskip` and `\rightskip` values are both zeroed here. Similarly, these skips are cancelled in the `\vfootnote` macros for the various types of notes. Strictly speaking, this is necessary only if you are using paragraphed footnotes, but we have put it here and in the other `\vfootnote` macros too so that the behavior of `reledmac` in this respect is general across all footnote types. What this means is that any `\leftskip` and `\rightskip` you specify applies to the main text, but not the footnotes. The footnotes continue to be of width `\hsize`.

```

2330 \newcommand*{\normalfootstart}[1]{%
2331 %

```

The first series of notes printed in a page can have a specific skip before it. In order to insert this specific skip without overlap the bottom margin of the page, Maïeul Rouquette have defined an algorithm explained in XVIII p. 191. Here is part of this algorithm, when the block of notes are ready to be printed.

```

2332 \ifdimequal{0pt}{\preXnotes@}{}%
2333   {%
2334     \iftoggle{preXnotes@}{%
2335       \togglefalse{preXnotes@}%
2336       \skip\csname #1footins\endcsname=%
2337       \dimexpr\csuse{preXnotes@}+\csuse{Xafterrule@#1}\relax%
2338     }%
2339   }%
2340 }%
2341 \vskip\skip\csname #1footins\endcsname%
2342 %

```

And now, the problem of left and right skip for notes. Especially when using one feature of `reledpar` which allows to have the footnotes horizontal size as the size of columns printed by `\Columns`. Read XV p. 189 for the general description of the problem.

```

2343 \leftskip0pt \rightskip0pt
2344 \ifl@dpairing\else%
2345   \hsize=\old@hsize%
2346 \fi%
2347 \setXnoteswidthliketwocolumns@{#1}%
2348 \setXnotespositionliketwocolumns@{#1}%
2349 %

```

And now, print the footnote's rule to finish the footnote's introduction.

```

2350 \print@Xfootnoterule{#1}%
2351 \noindent\leavevmode}
2352 %

```

**`\normalfootgroup`** `\normalfootgroup` is a standard footnote-grouping macro: it sends the contents of the footnote-insert box to the output page without alteration.

```

2353 \newcommand*{\normalfootgroup}[1]{%
2354   {\csuse{Xnotefontsize@#1}\noindent\csuse{Xtxtbeforenotes@#1}}%
2355   \csuse{Xhookgroup@#1}%
2356   \unvbox\csname #1footins\endcsname%
2357   \hsize=\old@hsize%
2358 }%
2359 %
2360 %

```

**`\mpnormalfootgroup`** A somewhat different version for minipages. Note that, in this case, we do not make distinctions between the `\Xfootgroup` and `\Xfootstarts` macros.

```

2361 \unless\ifnoledgroup@
2362 \newcommand*{\mpnormalfootgroup}[1]{%
2363   \vskip\skip\@nameuse{mp#1footins}
2364   \ifl@dpairing\ifparledgroup%
2365     \leavevmode\marks\parledgroup@{begin}%
2366     \marks\parledgroup@series{#1}%

```

```

2367 \marks\parledgroup@type{Xfootnote}%
2368 \fi\fi\normalcolor%
2369 \ifparledgroup%
2370 \ifl@dpairing%
2371 \else%
2372 \setXnoteswidthliketwocolumns@{#1}%
2373 \setXnotespositionliketwocolumns@{#1}%
2374 \print@Xfootnoterule{#1}%
2375 \fi%
2376 \else%
2377 \setXnoteswidthliketwocolumns@{#1}%
2378 \setXnotespositionliketwocolumns@{#1}%
2379 \print@Xfootnoterule{#1}%
2380 \fi%
2381 \setlength{\parindent}{0pt}
2382 {\csuse{Xnotefontsize@#1}\csuse{Xtxtbeforenotes@#1}}
2383 \csuse{Xhookgroup@#1}%
2384 \unvbox\csname mp#1footins\endcsname}}
2385 \fi
2386 %

```

### XII.6.3 Paraphed footnotes

The paraphed-footnote option reformats all the footnotes of one series for a page into a single paragraph; this is especially appropriate when the notes are numerous and brief. The code is based on *The TeXbook*, pp. 398–400, with alterations for our environment. This algorithm uses a considerable amount of save-stack space: a  $\TeX$  of ordinary size may not be able to handle more than about 100 notes of this kind on a page.

**\Xarrangement@paragraph** The `\Xarrangement@paragraph` macro sets up everything for one series of the footnotes so that they will be paraphed; it takes the series letter as argument. We include the setting of `\count\footins` to 1000 for the footnote series just in case user is switching to paraphed footnotes after having columnar ones, since they change this value (see below).

The argument of `\Xarrangement@footparagraph` is the letter denoting the series of notes to be paraphed.

```

2387 \newcommand*{\Xarrangement@paragraph}[1]{%
2388 \csgdef{series@display#1}{paragraph}
2389 \expandafter\newcount\csname #1prevpage@num\endcsname
2390 \expandafter\let\csname #1footstart\endcsname=\parafootstart
2391 \expandafter\let\csname v#1footnote\endcsname=\paravfootnote
2392 \expandafter\let\csname #1footfmt\endcsname=\parafootfmt
2393 \expandafter\let\csname #1footgroup\endcsname=\parafootgroup
2394 \count\csname #1footins\endcsname=1000
2395 \csxdef{default@#1footins}{1000}%Use this to confine the notes to one
side only
2396 \dimen\csname #1footins\endcsname=\csuse{Xmaxhnotes@#1}
2397 \skip\csname #1footins\endcsname=\csuse{Xbeforenotes@#1}%

```

```

2398 \advance\skip\csname #1footins\endcsname by\csuse{Xafterrule@#1}%
2399 \para@footsetup{#1}
2400 %

```

And the extra setup for minipages.

```

2401 \ifnoledgroup@else
2402   \expandafter\let\csname mpv#1footnote\endcsname=\mpparavfootnote
2403   \expandafter\let\csname mp#1footgroup\endcsname=\mpparafootgroup
2404   \count\csname mp#1footins\endcsname=1000
2405   \dimen\csname mp#1footins\endcsname=\csuse{Xmaxhnotes@#1}
2406   \skip\csname mp#1footins\endcsname=\csuse{Xbeforenotes@#1}%
2407   \advance\skip\csname mp#1footins\endcsname by\csuse{Xafterrule@#1}%
2408 \fi
2409 }
2410 %

```

**\footfudgefiddle** For paragraphed footnotes  $\TeX$  has to estimate the amount of space required. If it underestimates this then the notes may get too long and run off the bottom of the text block. `\footfudgefiddle` can be increased from its default 64 (say, to 70) to increase the estimate.

```

2411 \providecommand{\footfudgefiddle}{64}
2412 %

```

**\para@footsetup** `\footparagraph` calls the `\para@footsetup` macro to calculate a special fudge factor, which is the ratio of the `\baselineskip` to the `\hsize`. We assume that the proper value of `\baselineskip` for the footnotes (normally 9 pt) has been set already. The argument of the macro is again the note series letter.

Peter Wilson thinks that `\columnwidth` should be used here for  $\LaTeX$  not `\hsize`. Peter Wilson have also included `\footfudgefiddle`.

```

2413 \newcommand*{\para@footsetup}[1]{\csuse{Xbhookgroup@#1}\csuse{
Xnotefontsize@#1}
2414   \setXnoteswidthliketwocolumns@{#1}%
2415   \dimen0=\baselineskip
2416   \multiply\dimen0 by 1024
2417   \divide \dimen0 by \columnwidth \multiply\dimen0 by \footfudgefiddle\
relax
2418   \csxdef{#1footfudgefactor}{%
2419     \expandafter\strip@pt\dimen0 }}
2420
2421 %

```

`\strip@pt` strip the characters pt from a dimen value.

**\parafootstart** `\parafootstart` is the same as `\normalfootstart`, but we give it again to ensure that `\rightskip` and `\leftskip` are zeroed (this needs to be done before `\para@footgroup` in the output routine). The size of paragraphed notes is calculated

using a fudge factor which in turn is based on `\hsize`. So the paragraph of notes needs to be that wide.

The argument of the macro is again the note series letter.

```

2422 \newcommand*{\parafootstart}[1]{%
2423   \rightskip=0pt \leftskip=0pt%
2424   \nottoggle{Xparindent@#1}{\parindent=\z@}{}%
2425   \ifdimequal{0pt}{\preXnotes@}{}%
2426   {%
2427     \iftoggle{preXnotes@}{%
2428       \togglefalse{preXnotes@}%
2429       \skip\csname #1footins\endcsname=%
2430       \dimexpr\csuse{preXnotes@}+\csuse{Xafterrule@#1}\relax%
2431     }%
2432   }%
2433 }%
2434 \vskip\skip\csname #1footins\endcsname%
2435 \setXnoteswidthliketwocolumns@{#1}%
2436 \setXnotespositionliketwocolumns@{#1}%
2437 \print@Xfootnoterule{#1}%
2438 \let\bidirTL@everypar\@empty%
2439 \noindent\leavevmode}
2440 %

```

`\paravfootnote` `\paravfootnote` is a version of the `\vfootnote` command that is used for paragraphed notes. It gets appended to the `\inserts@list` list by an outer-level footnote command like `\Afootnote`. The first argument is the note series letter; the second is the full text of the printed note itself, including line numbers, lemmata, and footnote text.

The initial model for this insertion is, of course, the `\insert\footins` definition in *The TeXbook*, p. 398. There, the footnotes are first collected up in `hboxes`, and these `hboxes` are later unpacked and stuck together into a paragraph.

However, Michael Downes has pointed out that because text in `hboxes` gets typeset in restricted horizontal mode, there are some undesirable side-effects if you later want to break such text across lines. In restricted horizontal mode, where  $\TeX$  does not expect to have to break lines, it does not insert certain items like `\discretionary`s. If you later unbox these `hboxes` and stick them together, as the *TeXbook* macros do to make these footnotes, you lose the ability to hyphenate after an explicit hyphen. This can lead to overfull `hboxes` when you would not expect to find them, and to the uninitiated it might be very hard to see why the problem had arisen.<sup>29</sup>

Wayne Sullivan pointed out to us another subtle problem that arises from the same cause:  $\TeX$  also leaves the `\language` whatsit nodes out of the horizontal list.<sup>30</sup> So changes from one language to another will not invoke the proper hyphenation rules in such footnotes. Since critical editions often do deal with several languages, especially in a footnotes, we really ought to get this bit of code right.

To get around these problems, Wayne suggested emendations to the *TeXbook* versions of these macros which are broadly the same as those described by Michael: the

<sup>29</sup>Michael Downes, ‘Line Breaking in `\unhboxed` Text’, *TUGboat* **11** (1990), pp. 605–612.

<sup>30</sup>See *The TeXbook*, p. 455 (editions after January 1990).

central idea (also suggested by Donald Knuth in a letter to Michael) is to avoid collecting the text in an `\hbox` in the first place, but instead to collect it in a `\vbox` whose width is (virtually) infinite. The text is therefore typeset in unrestricted horizontal mode, as a paragraph consisting of a single long line. Later, there is an extra level of unboxing to be done: we have to unpack the `\vbox`, as well as the `\hboxes` inside it, but that is not too hard. For details, we refer you to Michael's article, where the issues are clearly explained.<sup>31</sup> Michael's unboxing macro is called `\Xunvxh`: `unvbox`, extract the last line, and `unhbox` it.

Doing things this way has an important consequence: as Michael pointed out, you really can't put an explicit line-break into a note built in a `\vbox` the way we are doing.<sup>32</sup> In other words, be very careful not to use `\break`, or `\penalty-10000`, or any equivalent inside your para-footnote. If you do, most of the note will probably disappear. You *are* allowed to make strong suggestions; in fact `\penalty-9999` will be quite okay. Just do not make the break mandatory. We have not applied any of Michael's solutions here, since we feel that the problem is exiguous, and `reledmac` is quite baroque enough already. If you think you are having this problem, look up Michael's solutions.

One more thing; we set `\leftskip` and `\rightskip` to zero. This has the effect of neutralizing any such skips which may apply to the main text (cf. XII.6.2 p. 147 above). We need to do this, since `\footfudgefactor` is calculated on the assumption that the notes are `\hsize` wide.

So, finally, here is the modified foot-paragraph code, which sets the footnote in vertical mode so that language and discretionary nodes are included.

```

2441 \newcommand*{\paravfootnote}[2]{%
2442   \insert\csname #1footins\endcsname
2443   \bgroup
2444     \csuse{Xnotefontsize@#1}
2445     \footplitskips
2446     \setbox0=\vbox{\hsize=\maxdimen%
2447       \let\@RTL@everypar\@empty%
2448       \noindent\csuse{Xhooknote@#1}%
2449       \csname #1footfmt\endcsname #2{#1}}%
2450     \setbox0=\hbox{\Xunvxh{0}{#1}}%
2451     \dp0=0pt
2452     \ht0=\csname #1footfudgefactor\endcsname\wd0
2453 %

```

Here we produce the contents of the footnote from box 0, and add a penalty of 0 between boxes in this insert.

```

2454   \if@RTL\noindent \leavevmode\fi\box0%
2455   \penalty0
2456 \egroup}
2457
2458 %

```

<sup>31</sup> Wayne supplied his own macros to do this, but since they were almost identical to Michael's, Peter Wilson have used the latter's `\Xunvxh` macro since it is publicly documented.

<sup>32</sup> 'Line Breaking', p. 610.



The final penalty of 0 was added here at Wayne’s suggestion to avoid a weird page-breaking problem, which occurs on those occasions when  $\TeX$  attempts to split foot paragraphs. After trying out such a split (see *The TeXbook*, p. 124),  $\TeX$  inserts a penalty of  $-10000$  here, which nearly always forces the break at the end of the whole footnote paragraph (since individual notes can’t be split) even when this leads to an overfull vbox. The change above results in a penalty of 0 instead which allows, but does not force, such breaks. This penalty of 0 is later removed, after page breaks have been decided, by the `\unpenalty` macro in `\makehboxofhboxes`. So it does not affect how the footnote paragraphs are typeset (the notes still have a penalty of  $-10$  between them, which is added by `\parafootfmt`).

`\mpparavfootnote` This version is for minipages.

```

2459 \newcommand*{\mpparavfootnote}[2]{%
2460   \global\setbox\@nameuse{mp#1footins}\vbox{%
2461     \unvbox\@nameuse{mp#1footins}%
2462     \csuse{Xnotefontsize@#1}
2463     \footsplitskips
2464     \setbox0=\vbox{\hsize=\maxdimen%
2465       \let\bid@RTL@everypar\@empty%
2466       \noindent\color@begingroup%
2467       \csuse{Xhooknote@#1}%
2468       \csname #1footfmt\endcsname #2{#1}\color@endgroup}%
2469     \setbox0=\hbox{\Xunvxh{0}{#1}}%
2470     \dp0=\z@
2471     \ht0=\csname #1footfudgefactor\endcsname\wd0
2472     \box0
2473     \penalty0
2474   }}
2475
2476 %

```

`\Xunvxh` Here is (modified) Michael’s definition of `\unvxh`, used above. Michael’s macro also takes care to remove some unwanted penalties and glue that  $\TeX$  automatically attaches to the end of paragraphs. When  $\TeX$  finishes a paragraph, it throws away any remaining glue, and then tacks on the following items: a `\penalty` of 10000, a `\parfillskip` and a `\rightskip` (*The TeXbook*, pp. 99–100). `\unvxh` cancels these unwanted paragraph-final items using `\unskip` and `\unpenalty`.

```

2477 \newcommand*{\Xunvxh}[2]{%
2478   \setbox0=\vbox{\unvbox#1%
2479     \global\setbox1=\lastbox}%
2480   \unhbox1
2481   \unskip           % remove \rightskip,
2482   \unskip           % remove \parfillskip,
2483   \unpenalty        % remove \penalty of 10000,
2484   \hskip\csuse{Xafternote@#2}} % but add the glue to go between the notes
2485
2486 %

```

`\parafootfmt` `\parafootfmt` is `\normalfootfmt` adapted to do the special stuff needed for paragraphed notes—leaving out the `\endgraf` at the end, sticking in special penalties and kern, and leaving out the `\footstrut`. The first argument is the line and page number information, the second is the lemma, the third is the text of the footnote, and the fourth is the series (optional, for backward compatibility).

```

2487 \newcommand*{\parafootfmt}[4]{%
2488   \Xinsertparafootsep{#4}%
2489   \ledsetnormalparstuff@common%
2490   \printlinefootnote{#1}{#4}%
2491   {\nottoggle{Xlemmadisablefontselection@#4}{\select@lemmafnt#1|#2}{#2}}%
2492   \iftoggle{nosep@}{\hskip\csuse{Xinplaceoflemmaseparator@#4}}{\ifcsempy{
Xlemmaseparator@#4}%
2493     {\hskip\csuse{Xinplaceoflemmaseparator@#4}}}%
2494     {\nobreak\hskip\csuse{Xbeforelemmaseparator@#4}\csuse{Xlemmaseparator@
#4}\hskip\csuse{Xafterlemmaseparator@#4}%
2495   }}%
2496   #3\penalty-10 }
2497 %

```

Note that in the above definition, the penalty of  $-10$  encourages a line break between notes, so that notes have a slight tendency to begin on new lines. The `\Xinsertparafootsep` command is used to insert the `\Xparafootsep@series` between each note in the *same* page.

`\parafootgroup` This footgroup code is modelled on the macros in *The TeXbook*, p. 399. The only difference is the `\unpenalty` in `\makehboxofhboxes`, which is there to remove the penalty of 0 which was added to the end of each footnote by `\para@vfootnote`.

The call to `\Xnotefontsize@<s>` is to ensure that the correct `\baselineskip` for the footnotes is used. The argument is the note series letter.

```

2498 \newcommand*{\parafootgroup}[1]{%
2499   \unvbox\csname #1footins\endcsname
2500   \ifcsstring{Xragged@#1}{L}{\RaggedLeft}{}%
2501   \ifcsstring{Xragged@#1}{R}{\RaggedRight}{}%
2502   \makehboxofhboxes
2503   \setbox0=\hbox{\csuse{Xnotefontsize@#1}\csuse{Xtxtbeforenotes@#1}}\
unhbox0 \removehboxes}%
2504   \csuse{Xbhookgroup@#1}%
2505   \csuse{Xnotefontsize@#1}%
2506   \unhbox0\par%
2507   \global\hsize=\old@hsize%
2508   }%
2509 %
2510 %

```

`\mpparafootgroup` The minipage version.

```

2511 \newcommand*{\mpparafootgroup}[1]{%
2512   \setXnoteswidthliketwocolumns@{#1}%

```

```

2513 \vskip\skip\@nameuse{mp#1footins}
2514 \ifl@dpairing\ifparledgroup%
2515   \leavevmode\marks\parledgroup@{begin}%
2516   \marks\parledgroup@series{#1}%
2517   \marks\parledgroup@type{Xfootnote}%
2518 \fi\fi\normalcolor
2519 \ifparledgroup%
2520   \ifl@dpairing%
2521   \else%
2522     \setXnoteswidthliketwocolumns@{#1}%
2523     \setXnotespositionliketwocolumns@{#1}%
2524     \print@Xfootnoterule{#1}%
2525   \fi%
2526 \else%
2527   \setXnoteswidthliketwocolumns@{#1}%
2528   \setXnotespositionliketwocolumns@{#1}%
2529   \print@Xfootnoterule{#1}%
2530 \fi%
2531 \unvbox\csname mp#1footins\endcsname
2532 \ifcsstring{Xragged@#1}{L}{\RaggedLeft}{}%
2533 \ifcsstring{Xragged@#1}{R}{\RaggedRight}{}%
2534 \makehboxofhboxes
2535 \setbox0=\hbox{{\csuse{Xnotefontsize@#1}\csuse{Xtxtbeforenotes@#1}}\
unhbox0 \removehboxes}%
2536 \csuse{Xbhookgroup@#1}%
2537 \csuse{Xnotefontsize@#1}%
2538 \unhbox0\par}}
2539
2540 %

```

And finally, the two macros which are required to transform the long horizontal box stored in the insert' box to a printable text.

```

\makehboxofhboxes41 \newcommand*{\makehboxofhboxes}{\setbox0=\hbox{}}%
\removehboxes42 \loop
2543   \unpenalty
2544   \setbox2=\lastbox
2545   \ifhbox2
2546     \setbox0=\hbox{\box2\unhbox0}%
2547   \repeat}
2548
2549 \newcommand*{\removehboxes}{\setbox0=\lastbox
2550   \ifhbox0{\removehboxes}\unhbox0 \fi}
2551
2552 %

```

**Insertion of the footnotes separator** The command `\Xinsertparafootsep{<series>}` must be called at the beginning of `\parafootftm`.

```

\prevpage@num33 \newcommand{\Xinsertparafootsep}[1]{%
\Xinsertparafootsep34 \ifnumequal{\csuse{#1prevpage@num}}{\page@num}%
2555 {\ifcsdef{prevline#1}% Be sur \prevline#1 exists.
2556 {\ifnumequal{\csuse{prevline#1}}{\line@num}%
2557 {\ifcsempy{Xsymlinenum@#1}{\csuse{Xparafootsep@#1}}{}}%
2558 {\csuse{Xparafootsep@#1}}%
2559 }%
2560 {\csuse{Xparafootsep@#1}}%
2561 }%
2562 {}%
2563 \global\csname #1prevpage@num\endcsname=\page@num%
2564 }
2565 %

```

## XII.6.4 Columnar footnotes

### Common tools

**\rigidbalance** We will now define macros for three-column notes and two-column notes. Both sets of macros will use `\rigidbalance`, which splits a box (#1) into into a number (#2) of columns, each with a space (#3) between the top baseline and the top of the `\vbox`. The `\rigidbalance` macro is taken from *The TeXbook*, p.397, with a slight change to the syntax of the arguments so that they do not depend on white space. Note also the extra unboxing in `\splitoff`, which allows the new `\vbox` to have its natural height as it goes into the alignment.

The  $\text{\LaTeX}$  `\line` macro has no relationship to the TeX `\line`. The  $\text{\LaTeX}$  equivalent is `\@@line`.

```

2566 \newcount\@k \newdimen\@h
2567 \newcommand*\@rigidbalance}[3]{\setbox0=\box#1 \@k=#2 \@h=#3
2568 \@@line{\splittopskip=\@h \vbadness=\@M \hfilneg
2569 \valign{##\vfil\cr\dosplits}}
2570
2571 \newcommand*\@dosplits{\ifnum\@k>0 \noalign{\hfil}\splitoff
2572 \global\advance\@k-1\cr\dosplits\fi}
2573
2574 \newcommand*\@splitoff{\dimen0=\ht0
2575 \divide\dimen0 by\@k \advance\dimen0 by\@h
2576 \setbox2 \vsplit0 to \dimen0
2577 \unvbox2 }
2578
2579 %

```

### Three columns

```

\Xarrangement@threecol380 \newcommand*\Xarrangement@threecol}[1]{%
2581 \csgdef{series@display#1}{threecol}
2582 \expandafter\let\csname v#1footnote\endcsname=\threecolvfootnote

```

```

2583 \expandafter\let\csname #1footfmt\endcsname=\threecolfootfmt
2584 \expandafter\let\csname #1footgroup\endcsname=\threecolfootgroup
2585 \dimen\csname #1footins\endcsname=\csuse{Xmaxhnotes@#1}%
2586 \skip\csname #1footins\endcsname=\csuse{Xbeforenotes@#1}%
2587 \advance\skip\csname #1footins\endcsname by\csuse{Xafterrule@#1}%
2588 \threecolfootsetup{#1}
2589 %

```

The additional setup for minipages.

```

2590 \ifnoledgroup@else
2591   \expandafter\let\csname mpv#1footnote\endcsname=\mpnormalvfootnote
2592   \expandafter\let\csname mp#1footgroup\endcsname=\mpthreecolfootgroup
2593   \skip\csname mp#1footins\endcsname=\csuse{Xbeforenotes@#1}%
2594   \advance\skip\csname mp#1footins\endcsname by\csuse{Xafterrule@#1}%
2595   \mpthreecolfootsetup{#1}
2596 \fi
2597 }
2598
2599 %

```

The `\footstart` and `\footnoterule` macros for these notes assume the normal values (XII.6.2 p. 147 above).

**`\threecolfootsetup`** The `\threecolfootsetup` macro calculates and sets some numbers for three-column footnotes.

We set the `\count` of the foot insert to 333. Each footnote can be thought of as contributing only one third of its height to the page, since the footnote insertion has been made as a long narrow column, which then gets trisected by the `\rigidbalance` routine (inside `\threecolfootgroup`). These new, shorter columns are saved in a box, and then that box is *put back* into the footnote insert, replacing the original collection of the footnotes. This new box is, therefore, only about a third of the height of the original one.

The `\dimen` value for this note series has to change in the inverse way: it needs to be three times the actual limit on the amount of space these notes are allowed to fill on the page, because when  $\text{\TeX}$  is accumulating material for the page and checking that limit, it does not apply the `\count` scaling.

```

2600 \newcommand*{\threecolfootsetup}[1]{%
2601   \count\csname #1footins\endcsname 333
2602   \csxdef{default@#1footins}{333}%Use this to confine the notes to one
side only
2603   \multiply\dimen\csname #1footins\endcsname \thr@@}
2604 %

```

**`\mpthreecolfootsetup`** The setup for minipages.

```

2605 \newcommand*{\mpthreecolfootsetup}[1]{%
2606   \count\csname mp#1footins\endcsname 333
2607   \multiply\dimen\csname mp#1footins\endcsname \thr@@}

```

2608  
2609 %

**\threecolvfootnote** `\threecolvfootnote` is the `\vfootnote` command for three-column notes. The call to `\Xnotefontsize@{s}` ensures that the `\splittopskip` and `\splitmaxdepth` take their values from the right `\strutbox`: the one used in a footnotes. Note especially the importance of temporarily reducing the `\hsize` to 0.3 of its normal value. This determines the widths of the individual columns. So if the normal `\hsize` is, say, 10 cm, then each column will be  $0.3 \times 10 = 3$  cm wide, leaving a gap of 1 cm spread equally between columns (i.e., .5 cm between each).

The arguments are #1 the note series letter and #1 the full text of the note (including numbers, lemma and text).

```
2610 \notbool{parapparatus@}{\newcommand*}{\newcommand}{\threecolvfootnote}[2]{%
2611   \insert\csname #1footins\endcsname\bgroup%
2612   \noindent\csuse{Xbhooknote@#1}%
2613   \csuse{Xnotefontsize@#1}%
2614   \footplitskips%
2615   \csname #1footfmt\endcsname #2{#1}\egroup}
2616 %
```

**\threecolfootfmt** `\threecolfootfmt` is the command that formats one note. The arguments are #1 the line numbers, #2 the lemma and #4 the text of the `-footnote` command #4 optional (for backward compatibility): the series.

```
2617 \notbool{parapparatus@}{\newcommand*}{\newcommand}{\threecolfootfmt}[4]{%
2618   \normal@pars%
2619   \hsize \csuse{Xhsizethreecol@#4}%
2620   \nottoggle{Xparindent@#4}{\parindent=\z@}{}%
2621   \tolerance=5000%
2622   \hangindent=\csuse{Xhangindent@#4}%
2623   \par%
2624   \everypar{\hangindent=\csuse{Xhangindent@#4}}%
2625   \@tempdima=\parindent%
2626   \csuse{Xcolalign@#4}%
2627   \parindent=\@tempdima%
2628   \strut{\printlinefootnote{#1}{#4}}%
2629   {\nottoggle{Xlemmadisablefontselection@#4}{\select@lemmafонт#1|#2}{#2}}%
2630   \iftoggle{nosep@}{\hskip\csuse{Xinplaceoflemmaseparator@#4}}{\ifcempty{
Xlemmaseparator@#4}%
2631     {\hskip\csuse{Xinplaceoflemmaseparator@#4}}%
2632     {\nobreak\hskip\csuse{Xbeforelemmaseparator@#4}\csuse{Xlemmaseparator@
#4}\hskip\csuse{Xafterlemmaseparator@#4}%
2633     }}%
2634   #3\strut\par\allowbreak}
2635 %
```

**\threecolfootgroup** And here is the `footgroup` macro that is called within the output routine to regroup the notes into three columns. Once again, the call to `\Xnotefontsize@{s}` is there to ensure

that it is the right `\splittopskip`—the one used in footnotes—which is used to provide the third argument for `\rigidbalance`. This third argument (`\@h`) is the `topskip` for the box containing the text of the footnotes, and does the job of making sure the top lines of the columns line up horizontally. In *The TeXbook*, p. 398, Donald Knuth suggests retrieving the output of `\rigidbalance`, putting it back into the insertion box, and then printing the box. Here, we just print the `\line` which comes out of `\rigidbalance` directly, without any re-boxing.

```

2636 \newcommand*{\threecolfootgroup}[1]{\csuse{Xnotefontsize@#1}%
2637 \noindent\csuse{Xtxtbeforenotes@#1}\csuse{Xhookgroup@#1}}\par%
2638 \splittopskip=\ht\strutbox
2639 \expandafter
2640 \rigidbalance\csname #1footins\endcsname \thr@@ \splittopskip}
2641 %

```

`\mpthreecolfootgroup` The setup for minipages.

```

2642 \newcommand*{\mpthreecolfootgroup}[1]{\%
2643 \vskip\skip\@nameuse{mp#1footins}
2644 \ifl@dpairing\ifparledgroup%
2645 \leavevmode\marks\parledgroup@{begin}%
2646 \marks\parledgroup@series{#1}%
2647 \marks\parledgroup@type{Xfootnote}%
2648 \fi\fi\normalcolor
2649 \ifparledgroup%
2650 \ifl@dpairing%
2651 \else%
2652 \setXnoteswidthliketwocolumns@{#1}%
2653 \setXnotespositionliketwocolumns@{#1}%
2654 \print@Xfootnoterule{#1}%
2655 \fi%
2656 \else%
2657 \setXnoteswidthliketwocolumns@{#1}%
2658 \setXnotespositionliketwocolumns@{#1}%
2659 \print@Xfootnoterule{#1}%
2660 \fi%
2661 {\csuse{Xnotefontsize@#1}\noindent\csuse{Xtxtbeforenotes@#1}}%
2662 \csuse{Xhookgroup@#1}\par%
2663 \splittopskip=\ht\strutbox
2664 \expandafter
2665 \rigidbalance\csname mp#1footins\endcsname \thr@@ \splittopskip}}
2666 %
2667 %

```

## Two columns

```

\Xarrangement@twocol 2668 \newcommand*{\Xarrangement@twocol}[1]{%
2669 \csgdef{series@display#1}{twocol}
2670 \expandafter\let\csname v#1footnote\endcsname=\twocolvfootnote

```

```

2671 \expandafter\let\csname #1footfmt\endcsname=\twocolfootfmt
2672 \expandafter\let\csname #1footgroup\endcsname=\twocolfootgroup
2673 \dimen\csname #1footins\endcsname=\csuse{Xmaxhnotes@#1}%
2674 \skip\csname #1footins\endcsname=\csuse{Xbeforenotes@#1}%
2675 \advance\skip\csname #1footins\endcsname by\csuse{Xafterrule@#1}%
2676 \twocolfootsetup{#1}
2677 %

```

The additional setup for minipages.

```

2678 \ifnoledgroup@else
2679 \expandafter\let\csname mpv#1footnote\endcsname=\mpnormalvfootnote
2680 \expandafter\let\csname mp#1footgroup\endcsname=\mptwocolfootgroup
2681 \skip\csname mp#1footins\endcsname=\csuse{Xbeforenotes@#1}%
2682 \advance\skip\csname mp#1footins\endcsname by\csuse{Xafterrule@#1}%
2683 \mptwocolfootsetup{#1}
2684 \fi
2685 }
2686 %
2687 %

```

`\twocolfootsetup` Here is a series of macros which are very similar to their three-column counterparts. In this case, each note is assumed to contribute only a half a line of text. And the notes are set in columns giving a gap between them of one tenth of the `\hspace`.

```

\twocolvfootnote
\twocolfootfmt
\twocolfootgroup
2688 \newcommand*{\twocolfootsetup}[1]{%
2689 \count\csname #1footins\endcsname 500
2690 \csxdef{default@#1footins}{500}%Use this to confine the notes to one
side only
2691 \multiply\dimen\csname #1footins\endcsname \tw@}
2692 %

2693 \notbool{parapparatus@}{\newcommand*{\newcommand}{\twocolvfootnote}[2]{%
2694 \insert\csname #1footins\endcsname\bgroup%
2695 \noindent\csuse{Xbhooknote@#1}%
2696 \csuse{Xnotefontsize@#1}%
2697 \footsplitskips%
2698 \csname #1footfmt\endcsname #2{#1}\egroup}
2699 %

2700 \notbool{parapparatus@}{\newcommand*{\newcommand}{\twocolfootfmt}[4]{% 4th
arg is optional, for backward compatibility
2701 \normal@pars%
2702 \hspace \csuse{Xhsizetwocol@#4}%
2703 \nottoggle{Xparindent@#4}{\parindent=\z@}{}%
2704 \tolerance=5000%
2705 \hangindent=\csuse{Xhangindent@#4}%
2706 \par%
2707 \everypar{\hangindent=\csuse{Xhangindent@#4}}%
2708 \@tempdima=\parindent%
2709 \csuse{Xcolalign@#4}%

```



```

2710 \parindent=\@tempdima%
2711 \strut{\printlinefootnote{#1}{#4}}%
2712 {\nottoggle{Xlemmadisablefontselection@#4}{\select@lemmafont#1|#2}{#2}}%
2713 \iftoggle{nosep@}{\hskip\csuse{Xinplaceoflemmaseparator@#4}}{\ifcseempty{
Xlemmaseparator@#4}%
2714 {\hskip\csuse{Xinplaceoflemmaseparator@#4}}%
2715 {\nobreak\hskip\csuse{Xbeforelemmaseparator@#4}\csuse{Xlemmaseparator@
#4}\hskip\csuse{Xafterlemmaseparator@#4}}%
2716 }}%
2717 #3\strut\par\allowbreak}
2718 %

2719 \newcommand*{\twocolfootgroup}[1]{\csuse{Xnotefontsize@#1}
2720 \noindent\csuse{Xtxtbeforenotes@#1}\csuse{Xbhookgroup@#1}}\par%
2721 \splittopskip=\ht\strutbox
2722 \expandafter
2723 \rigidbalance\csname #1footins\endcsname \tw@ \splittopskip}
2724
2725 %

```

`\mptwocolfootsetup` The versions for minipages.

`\mptwocolfootgroup`

```

2726 \newcommand*{\mptwocolfootsetup}[1]{%
2727 \count\csname mp#1footins\endcsname 500
2728 \multiply\dimen\csname mp#1footins\endcsname \tw@}
2729 %

2730 \newcommand*{\mptwocolfootgroup}[1]{%
2731 \vskip\skip\@nameuse{mp#1footins}
2732 \ifl@dpairing\ifparledgroup%
2733 \leavevmode\marks\parledgroup@{begin}%
2734 \marks\parledgroup@series{#1}%
2735 \marks\parledgroup@type{Xfootnote}%
2736 \fi\fi\normalcolor
2737 \ifparledgroup%
2738 \ifl@dpairing%
2739 \else%
2740 \setXnoteswidthliketwocolumns@{#1}%
2741 \setXnotespositionliketwocolumns@{#1}%
2742 \print@Xfootnoterule{#1}%
2743 \fi%
2744 \else%
2745 \setXnoteswidthliketwocolumns@{#1}%
2746 \setXnotespositionliketwocolumns@{#1}%
2747 \print@Xfootnoterule{#1}%
2748 \fi%
2749 {\csuse{Xnotefontsize@#1}\noindent\csuse{Xtxtbeforenotes@#1}}%
2750 \csuse{Xbhookgroup@#1}\par%
2751 \splittopskip=\ht\strutbox
2752 \expandafter

```

```

2753 \rigidbalance\csname mp#1footins\endcsname \tw@ \splittopskip}}
2754
2755 %

```

## XII.7 Critical notes presentation

Here, we define some commons macro which are used in order to print a critical notes, that is a note with 1) line number 2) lemma 3) lemma separator 4) text associated to the lemma.

### XII.7.1 Font tools

`\endashchar` The fonts that are used for printing notes might not have the character mapping we expect: for example, the Computer Modern font that contains old-style numerals does not contain an en-dash or square brackets, and its period and comma are in odd locations. To allow use of the standard footnote macros with such fonts, we use the following macros for certain characters.

The `\endashchar` macro is simply an en-dash from the normal font and is immune to changes in the surrounding font. The same goes for the full stop. These two are used in `\printlines`. The right bracket macro is the same again; it crops up in `\normalfootfmt` and the other footnote macros for controlling the format of the footnotes.

With `polyglossia`, each critical note has a `\footnote@lang` which shows the language of the lemma, and which can be used to switch the bracket from right to left.

```

2756 \def\endashchar{\textnormal{--}}
2757
2758 \newcommand*{\fullstop}{\textnormal{.}}
2759 \def\Xsublinesep@side{\fullstop}
2760
2761 \newcommand*{\rbracket}{\textnormal{%
2762   \csuse{text}\csuse{footnote@lang}}{%
2763     \ifluatex%
2764       \ifdefstring{\footnote@luatextextdir}{TRT}{\thinspace[]{\thinspace
2765     }}%
2766       \else%
2767       \thinspace[]%
2768       \fi}%
2769   }}%
2770
2771 %

```

### XII.7.2 Pstart number in footnote

`\printpstart` The `\printpstart` macro prints the pstart number for a note.

```

2772 \newcommand{\printpstart}[0]{%
2773   \ifboolexpr{bool{!@dpairing} or bool{!@dprintingpages} or bool{
!@dprintingcolumns}}{%
2774     \ifledRcol%
2775       \thepstartR%
2776     \else%
2777       \thepstartL%
2778     \fi%
2779   }{%
2780     \thepstart%
2781   }%
2782 }
2783 %

```

### XII.7.3 Line number printing

**\printlinefootnote** The `\printlinefootnote` macro is called in each `\<type>footfmt` command. It controls whether the line number is printed or not, according to the series options. Its first argument is the information about lines; its second is the series of the footnote. The printing of the line number is shared in `\printlinefootnotenumbers`.

```

2784 \newcommand{\printlinefootnote}[2]{%
2785   \l@dp@rsefootspec#1|{%
2786     \iftoggle{Xnumberonlyfirstintwolines@#2}{%
2787       \edef\lineinfo@{\l@dparsedstartline - \l@dparsedstartsub - \
l@dparsedendline - \l@dparsedendsub}%
2788     }%
2789     {%
2790       \edef\lineinfo@{\l@dparsedstartline - \l@dparsedstartsub}%
2791     }%
2792     \iftoggle{Xnonum@}{%Try if the line number must printed for this specific
not (by default, yes)
2793       \hspace{\csuse{Xinplaceofnumber@#2}}%
2794     }%
2795     {%
2796       {%
2797         \iftoggle{Xnonumber@#2}{%Try if the line number must printed (by
default, yes)
2798         }%
2799         \hspace{\csuse{Xinplaceofnumber@#2}}%
2800       }%
2801       {%
2802         {\iftoggle{Xnumberonlyfirstinline@#2}% If for this series the
line number must be printed only in the first time.
2803         }%
2804         \ifcsdef{prevline#2}%
2805         {%Be sure the \prevline exists.
2806         \ifcsequal{prevline#2}{\lineinfo@}%Try it
2807         }%

```

```

2808         \ifcempty{Xsymlinenum@#2}%
2809         {%
2810             \hspace{\csuse{Xinplaceofnumber@#2}}%
2811         }%
2812         {\printsymlinefootnotearea{#2}}%
2813     }%
2814     {%
2815         \printlinefootnotearea{#1}{#2}%
2816     }%
2817 }%
2818 {%
2819     \printlinefootnotearea{#1}{#2}%
2820 }%
2821 }%
2822 {%
2823     \printlinefootnotearea{#1}{#2}%
2824 }%
2825 \csxdef{prevline#2}{\lineinfo@}%
2826 }%
2827 }%
2828 }%
2829 }%
2830 }
2831 %

```

**\printsymlinefootnotearea** This macro prints the space before the line symbol, changes the font, when prints the line symbol and the space after it.

```

2832 \newcommand{\printsymlinefootnotearea}[1]{%
2833     \hspace{\csuse{Xbeforesymlinenum@#1}}%
2834     \csuse{Xnotenumfont@#1}%
2835     \ifdimequal{\csuse{Xboxsymlinenum@#1}}{\z@}%
2836         {\csuse{Xsymlinenum@#1}}%
2837         {\hbox to \csuse{Xboxsymlinenum@#1}%
2838             {\csuse{Xsymlinenum@#1}\hfill}%
2839         }%
2840     \hspace{\csuse{Xaftersymlinenum@#1}}%
2841 }%
2842 %

```

**\printlinefootnotearea** This macro prints the space before the line number, changes the font, then prints the line number and the space after it. It is called by \printlinefootnote depending of the options about repeating line numbers. The first argument is line information, the second is the notes series (A, B, C, etc.)

```

2843 \newcommand{\printlinefootnotearea}[2]{%
2844     \printXbeforenumber{#2}%
2845     \csuse{Xnotenumfont@#2}%
2846     \boxfootnotenumbers{#1}{#2}%
2847     \printXafternumber{#2}%

```

```
2848 }%
2849 %
```

**\boxfootnotenumbers** Depending on the user settings, this macro will box line numbers (or not). The first argument is line information, the second is the notes series (A, B, C, etc.) The previous `\printlinefootnotearea` calls it.

```
2850 \newcommand{\boxfootnotenumbers}[2]{%
2851   \ifdimequal{\csuse{Xboxlinenum@#2}}{0pt}{%
2852     \printlinefootnotenumbers{#1}{#2}%
2853   }%
2854   {%
2855     \hbox to \csuse{Xboxlinenum@#2}%
2856     {%
2857       \IfSubStr{RC}{\csuse{Xboxlinenumalign@#2}}{\hfill}{}%
2858       \printlinefootnotenumbers{#1}{#2}%
2859       \IfSubStr{LC}{\csuse{Xboxlinenumalign@#2}}{\hfill}{}%
2860     }%
2861   }%
2862 }%
2863 %
```

**\printlinefootnotenumbers** This macro prints, if needed, the pstart number and the line number. The first argument is line information, the second is the notes series (A, B, C, etc.) The previous `\boxlinefootnote` calls it.

```
2864 \newcommand{\printlinefootnotenumbers}[2]{%
2865   \xdef\@currentseries{#2}%
2866   \ifboolexpr{%
2867     (togl{Xpstart@#2} and bool{numberpstart})%
2868     or togl{Xpstarteverytime@#2}}%
2869   {\printpstart}{}%
2870   \iftoggle{Xstanza@#2}{%
2871     \ifnumberstanza%
2872     \printstanza%
2873     \csuse{Xstanzaseparator@#2}%
2874   }%
2875   \iftoggle{Xonlypstart@#2}{%
2876     \csuse{Xtxtbeforenumber@#2}%
2877     \printlines#1||\ifledRcol@\@Rlineflag\fi}%
2878   }%
2879 }%
2880 %
```

**\printXbeforenumber** This macro prints a space (before the line number) in footnote. It is called by `\printlinefootnotearea`. Its only argument is the note series (A, B, C, etc.)

```
2881 \newcommand{\printXbeforenumber}[1]{%
2882   \hspace{\csuse{Xbeforenumber@#1}}%
2883 }%
2884 %
```

`\printXafternumber` This macro prints the space, adding eventually a `\nobreak`, after the line number, in footnote. It is called by `\printlinefootnotearea`. Its only argument is the series

```
2885 \newcommand{\printXafternumber}[1]{%
2886   \iftoggle{Xnonbreakableafternumber@#1}{\nobreak}{}%
2887   \hspace{\csuse{Xafternumber@#1}}%
2888 }%
2889 %
```

If we have decided to print the line number in a specific notes, the `\printlines` macro prints the line numbers for a note—which, in the general case, is a rather complicated task. The seven parameters of the argument are the line numbers as stored in `\l@d@nums`, in the form described on V.9 p. 85: the starting page, line, and sub-line numbers, followed by the ending page, line, and sub-line numbers, and then the font specifier for the lemma.

edmac’ creator have defined six boolean in order to know which component of line number description we have to print:

- `\ifl@d@pnum` for page numbers;
- `\ifl@d@ssub` for starting sub-line;
- `\ifl@d@elin` for ending line;
- `\ifl@d@esl` for ending sub-line; and
- `\ifl@d@dash` for the dash between the starting and ending groups.

There is no boolean for the line number because it is always printed.

Maïeul Rouquette has added `\ifl@d@Xtwolines` and `\ifl@d@Xmorethantwolines` to print a symbol which stands for “and subsequent” when there are two, three or more lines.

```
\ifl@d@pnum90 \newif\ifl@d@pnum
\ifl@d@ssub91 \newif\ifl@d@ssub
\ifl@d@elin92 \newif\ifl@d@elin
\ifl@d@esl93 \newif\ifl@d@esl
\ifl@d@dash94 \newif\ifl@d@dash
\ifl@d@Xtwolines95 \newif\ifl@d@Xtwolines%
\ifl@d@Xmorethantwolines96 \newif\ifl@d@Xmorethantwolines%
97 %
```

|                                  |                                                                                                                                            |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| <code>\l@dp@rsefootspec</code>   | <code>\l@dp@rsefootspec</code> parses lines specification and defines macros holding the numeric values. Just a reminder of the arguments: |
| <code>\l@dparsedstartpage</code> |                                                                                                                                            |
| <code>\l@dparsedstartline</code> | <code>\printlines</code> #1         #2         #3         #4         #5         #6         #7                                              |
| <code>\l@dparsedstartsub</code>  | <code>\printlines</code> start-page   line   subline   end-page   line   subline   fontflag                                                |
| <code>\l@dparsedendpage</code>   |                                                                                                                                            |
| <code>\l@dparsedendline</code>   |                                                                                                                                            |
| <code>\l@dparsedendsub</code>    |                                                                                                                                            |

```

2898 \def\l@dp@rsefootspec#1|#2|#3|#4|#5|#6|#7|{%
2899   \gdef\l@dparsedstartpage{#1}%
2900   \gdef\l@dparsedstartline{#2}%
2901   \gdef\l@dparsedstartsub{#3}%
2902   \gdef\l@dparsedendpage{#4}%
2903   \gdef\l@dparsedendline{#5}%
2904   \gdef\l@dparsedendsub{#6}%
2905 }
2906 %

```

Initialise the several number value macros.

```

2907 \def\l@dparsedstartpage{0}%
2908 \def\l@dparsedstartline{0}%
2909 \def\l@dparsedstartsub{0}%
2910 \def\l@dparsedendpage{0}%
2911 \def\l@dparsedendline{0}%
2912 \def\l@dparsedendsub{0}%
2913
2914 %

```

**\setprintlines** The macro `\setprintlines` does the work of deciding what numbers should be printed. Its arguments are the same as the first 6 of `\printlines`.

```

2915 \newcommand*{\setprintlines}[6]{%
2916   \l@d@pnumfalse \l@d@dashfalse
2917 %

```

We print the page numbers only if: 1) we are doing the lineation by page, and 2) the ending page number is different from the starting page number.a

```

2918   \ifbypage@
2919     \ifnum#4=#1 \else
2920       \l@d@pnumtrue
2921       \l@d@dashtrue
2922     \fi
2923   \fi
2924 %

```

We print the ending line number if: (1) we are printing the ending page number, or (2) it is different from the starting line number.

```

2925   \ifl@d@pnum \l@d@elintrue \else \l@d@elinfalse \fi
2926   \ifnum#2=#5 \else
2927     \l@d@elintrue
2928     \l@d@dashtrue
2929   \fi
2930 %

```

We print the starting sub-line if it is nonzero.

```

2931   \l@d@ssubfalse
2932   \ifnum#3=0 \else

```

```

2933 \l@d@ssubtrue
2934 \fi
2935 %

```

We print the ending sub-line if it is nonzero and: (1) it is different from the starting sub-line number, or (2) the ending line number is being printed.

```

2936 \l@d@eslfalse
2937 \ifnum#6=0 \else
2938   \ifnum#6=#3
2939     \ifl@d@elin \l@d@esltrue \else \l@d@eslfalse \fi
2940   \else
2941     \l@d@esltrue
2942     \l@d@dashtrue
2943   \fi
2944 \fi%
2945 %

```

However, if the `\Xtwolines` is set for the current series, we do not print the last line number.

```

2946 \ifl@d@dash%
2947 \ifboolexpr{togl{fulllines@} or test{\ifcsemt{Xtwolines@
@currentseries}}}%
2948 {}%
2949 {%
2950 \setistwofollowinglines{#1}{#2}{#4}{#5}%
2951 \ifboolexpr{%
2952   (%
2953     togl {Xtwolinesbutnotmore@ \@currentseries}%
2954     and not%
2955     (%
2956       bool {istwofollowinglines@}%
2957     )%
2958   )%
2959   or%
2960   (%
2961     (not test{\ifnumequal{#1}{#4}})%
2962     and togl{Xtwolinesonlyinsamepage@ \@currentseries}%
2963   )%
2964 }%
2965 {}%
2966 {%
2967 \l@d@dashfalse%
2968 \l@d@Xtwolinesttrue%
2969 \l@d@elinfalse%
2970 \l@d@eslfalse%
2971 \ifcsemt{Xmorethantwolines@ \@currentseries}%
2972 {}%
2973 {\ifistwofollowinglines@ \else%
2974   \l@d@Xmorethantwolinesttrue%

```



```

2975         \fi%
2976     }%
2977 }%
2978 }%
2979 \fi%
2980 %

```

End of \setprintlines.

```

2981 }%
2982 %

```

`\setistwofollowinglines` The `\ifistwofollowinglines` boolean, used by the `\Xtwolines` and related setting, is set to true by `\setistwofollowinglines`. This command takes the following arguments:

- #1 First page number.
- #2 First line number.
- #3 Last page number.
- #4 Last line number.

If  $\#3 - \#2 = 1$ , then that means the two lines are subsequent, and consequently `\ifistwofollowinglines` is set to true. However, if we use lineation by page, two given lines can be subsequent if:

- The first line number is equal to the last line number of the first page.
- The last line number is equal to 1.
- $\#3 - \#1$  is equal to 1.

```

2983 \newif\ifistwofollowinglines@%
2984 \newcommand{\setistwofollowinglines}[4]{%
2985     \ifcsdef{lastlinenumberon@#1}%
2986         {\numdef{\tmp}{\csuse{lastlinenumberon@#1}}}%
2987         {\numdef{\tmp}{0}}%
2988     \istwofollowinglines@false%
2989     \ifnumequal{#4-#2}{1}%
2990     {\istwofollowinglines@true}%
2991     {\ifbypage@%
2992         \ifnumequal{#3-#1}{1}%
2993         {%
2994             \ifnumequal{#2}{\tmp}%
2995             {\ifnumequal{#4}{1}{\istwofollowinglines@true}}}%
2996         {}%
2997     }%
2998     {}%
2999 \fi%

```

```

3000 }%
3001 }%
3002 %

```

`\printlines` So, we have decided which part of line number sets will be printed depending of these value. Now we are ready to print them. If the lineation is by pstart, we print the pstart. Arguments are 1) start page number 2) start line number 3) start subline number 4) end page number 5) end line number 6) end subline number 7) font specification 8) side flag

```

3003 \def\printlines#1|#2|#3|#4|#5|#6|#7|#8|{%
3004   \begingroup%
3005 %

```

If we use LuaTeX, ensure we use good text's direction.

```

3006   \ifluatex%
3007     \edef\@tmp{\the\textdir}%
3008     \ifdefstring{\@tmp}{TLT}{\textdir TLT}%Test in order to prevent
    spurious space (bug #397)
3009   \fi%
3010 %

```

Decide which part of line number components we will print.

```

3011   \setprintlines{#1}{#2}{#3}{#4}{#5}{#6}%
3012 %

```

One subtlety left here is when to print a period between numbers. But the only instance in which this is tricky is for the ending sub-line number: it could come after the starting sub-line number (in which case we want only the dash) or after an ending line number (in which case we need to insert a period). So, first, print the start line number.

```

3013   \ifdimequal{\csuse{Xboxstartlinenum@\@currentseries}}{0pt}%
3014     {\bgroup}%
3015     {\leavevmode\hbox to \csuse{Xboxstartlinenum@\@currentseries}\bgroup\
    hfill}%
3016   \ifl@d@pnum #1%
3017     \csuse{Xsublinesep@\@currentseries}%
3018   \fi%
3019   \linenumrep{#2}\iftoggle{Xlineflag@\@currentseries}{#8}{}%
3020   \ifl@d@ssub%
3021     \csuse{Xsublinesep@\@currentseries}%
3022     \sublinenumrep{#3}%
3023   \fi
3024   \egroup%
3025 %

```

Then print the dash + end line number, or the range symbol.

```

3026   \ifdimequal{\csuse{Xboxendlinenum@\@currentseries}}{0pt}%
3027     {\bgroup}%
3028     {\hbox to \csuse{Xboxendlinenum@\@currentseries}\bgroup}%
3029   \ifl@d@xtwolines%

```

```

3030 \ifl@d@Xmorethantwolines%
3031 \csuse{Xmorethantwolines@}\@currentseries}%
3032 \else%
3033 \csuse{Xtwolines@}\@currentseries}%
3034 \fi%
3035 \else%
3036 \ifl@d@dash%
3037 \ifdefined\linangesep@%
3038 \linangesep@%
3039 \else%
3040 \csuse{Xlinangeseparator@}\@currentseries}%
3041 \fi%
3042 \fi%
3043 \ifl@d@pnum%
3044 #4%
3045 \csuse{Xsublinesep@}\@currentseries}%
3046 \fi%
3047 \ifl@d@elin \linenumrep{#5}\iftoggle{Xlineflag@}\@currentseries}{#8}{-}\
fi%
3048 \ifl@d@esl%
3049 \ifl@d@elin%
3050 \csuse{Xsublinesep@}\@currentseries}%
3051 \fi%
3052 \sublinenumrep{#6}%
3053 \fi%
3054 \fi%
3055 \ifdimequal{\csuse{Xboxendlinenum@}\@currentseries}}{0pt}%
3056 {}%
3057 {\hfill}%Prevent underfull hbox
3058 \egroup%
3059 \endgroup%
3060 }%
3061 %

```

## XIII Familiar footnotes

### XIII.1 Adjacent footnotes

The original edmac provided users with five series of critical footnotes (`\Afootnote`, `\Bfootnote`, `\Cfootnote`, `\Dfootnote`, `\Efootnote`), and  $\TeX$  provides a single numbered footnote. The `reledmac` package uses the edmac mechanism to provide six series of numbered footnotes.

First, though, the `footmisc` package has an option whereby two or more consecutive footnotes have their marks separated by commas. This seemed to Peter Wilson such a useful ability that it was provided automatically by `eledmac`.

Maïeul Rouquette has maintained this feature in `reledmac`, despite he thought that is not directly in relationship with the aim of `reledmac`.

**\multiplefootnotemarker** These macros may have been defined by the memoir class, are provided by the footmisc package and perhaps by other footnote packages. That is why we use \providecommand and not \newcommand.

**\multfootsep**

```
3062 \providecommand*\multiplefootnotemarker}{3sp}
3063 \providecommand*\multfootsep}{\textsuperscript{\normalfont,}}
3064
3065 %
```

**\m@mmf@prepare** A pair of self-cancelling kerns. This may have been defined in the memoir class.

```
3066 \providecommand*\m@mmf@prepare}{%
3067   \kern-\multiplefootnotemarker
3068   \kern\multiplefootnotemarker\relax}
3069 %
```

**\m@mmf@check** This may have been defined in the memoir class. If it recognises the last kern as \multiplefootnotemarker it typesets \multfootsep.

```
3070 \providecommand*\m@mmf@check}{%
3071   \ifdim\lastkern=\multiplefootnotemarker\relax
3072     \edef\x@sf{\the\spacefactor}%
3073     \unkern
3074     \multfootsep
3075     \spacefactor\x@sf\relax
3076   \fi}
3077
3078 %
```

We have to modify \@footnotetext and \@footnotemark. However, if memoir is used the modifications have already been made.

```
3079 \@ifclassloaded{memoir}{}{%
3080 %
```

**\@footnotetext** Add \m@mmf@prepare at the end of \@footnotetext.

```
3081 \apptocmd{\@footnotetext}{\m@mmf@prepare}{}{}
3082 %
```

**\@footnotemark** Modify \@footnotemark to cater for adjacent \footnotes.

```
3083
3084 \patchcmd{\@footnotemark}
3085   {\nobreak}
3086   {\m@mmf@check
3087     \nobreak
3088   }
3089   {}{}%
```

```

3090 \patchcmd{\@footnotemark}
3091   {\@makefnmark}
3092   {\@makefnmark
3093   \m@mmf@prepare
3094   }
3095   {}{}
3096 %

```

Finished the modifications for the non-memoir case.

```

3097 }
3098
3099 %

```

## XIII.2 Regular footnotes for numbered texts

`\l@doldold@footnotetext` In order to enable the regular `\footnotes` in numbered text we have to play around  
`\@footnotetext` with its `\@footnotetext`, using different forms for when in numbered or regular text.

```

3100 \pretocmd{\@footnotetext}{%
3101   \ifnumberedpar@
3102   \edtext{}{\l@dbfnote{#1}}}%
3103   \else
3104   }{}{}
3105 \apptocmd{\@footnotetext}{\fi}{}{}%
3106 %

```

`\l@dbfnote` `\l@dbfnote` adds the footnote to the insert list, and `\vl@dbfnote` calls the original  
`\vl@dbfnote` `\@footnotetext`. We also patch `\footnote` in order to get the correct footnote  
`\footnote` numbers when typesetting parallel texts.

```

3107
3108 \patchcmd%
3109   {\footnote}%
3110   {\stepcounter\@mpfn}%
3111   {%
3112   \ifl@dpairing%
3113   \global\advance\footnote@reading by \@ne%
3114   \ifcsdef{footnotereading\the\footnote@reading=typeset}}%
3115   {\setcounter{\@mpfn}{\csuse{footnotereading\the\footnote@reading=
typeset}}}%
3116   {\setcounter{\@mpfn}{\footnote@reading}}}%
3117   \else%
3118   \stepcounter\@mpfn%
3119   \fi%
3120   }%
3121   {}
3122   {}

```

```

3123 \newcommand{\l@dbfnote}[1]{%
3124   \ifnumberedpar@
3125   \ifl@dpairing
3126     \protected@xdef\thisfootnote{\the\footnote@reading}%
3127   \else%
3128     \protected@xdef\thisfootnote{\thefootnote}%
3129   \fi%
3130   \gdef\@tag{#1\relax}%
3131   \ifledRcol%
3132     \xright@appenditem{\noexpand\l@dbfnote{\expandonce\@tag}}{\
thisfootnote}}%
3133     \to\inserts@listR
3134     \global\advance\insert@countR \@ne%
3135   \else%
3136     \xright@appenditem{\noexpand\l@dbfnote{\expandonce\@tag}}{\
thisfootnote}}%
3137     \to\inserts@list
3138     \global\advance\insert@count \@ne%
3139   \fi
3140   \fi\ignorespaces}
3141
3142 \newcommand{\vl@dbfnote}[2]{%
3143   \ifboolexpr{bool{l@dprintingpages} or bool{l@dprintingcolumns}}{%
3144     {%
3145       \global\advance\footnote@typeset by \@ne%
3146       \setcounter{footnote}{\footnote@typeset}%
3147       \immediate\write\@mainaux{%
3148         \global\csdef{footnotereading#2=typeset}{\the\footnote@typeset}%
3149         }%
3150       \def\@thefnmark{\the\footnote@typeset}%
3151     }%
3152     {%
3153       \@namedef{@thefnmark}{#2}%
3154     }%
3155     \@footnotetext{#1}%
3156   }%
3157   %

```

### XIII.3 Footnote formats

Some of the code for the various formats is remarkably similar to that in section ??.

The following macros generally set things up for the ‘standard’ footnote format.

`\prebodyfootmark` Two convenience macros for use by `\...@footnotemark...` macros.  
`\postbodyfootmark`

```

3158 \newcommand*{\prebodyfootmark}{%
3159   \leavevmode
3160   \ifhmode
3161     \edef\x@sf{\the\spacefactor}%

```

```

3162 \m@mmf@check
3163 \nobreak
3164 \fi}
3165 \newcommand{\postbodyfootmark}{%
3166 \m@mmf@prepare
3167 \ifhmode\spacefactor\@x@sf\fi\relax}
3168
3169 %

```

## XIII.4 Footnote arrangement

### XIII.4.1 User level macro

`\arrangementX` `\arrangementX[s]{arrangement}` command calls, for each series, a specific command which set many counters and commands in order to define specific arrangement.

```

3170 \newcommandx{\arrangementX}[2][1,usedefault]{%
3171 \def\do##1{%
3172 \csname arrangementX@#2\endcsname{##1}%
3173 }%
3174 \ifstrepty{#1}%
3175 {%
3176 \dolistloop{\@series}%
3177 }%
3178 {
3179 \docsvlist{#1}%
3180 }%
3181 }%
3182 %

```

### XIII.4.2 Normal footnotes

`\normal@footnotemarkX` `\normal@footnotemarkX{series}` sets up the typesetting of the marker at the point where the footnote is called for.

```

3183 \newcommand*{\normal@footnotemarkX}[1]{%
3184 \prebodyfootmark
3185 \@nameuse{bodyfootmark#1}%
3186 \postbodyfootmark}
3187
3188 %

```

`\normalbodyfootmarkX` The `\normalbodyfootmarkX{series}` *really* typesets the in-text marker. The style is the normal superscript.

```

3189 \newcommand*{\normalbodyfootmarkX}[1]{%
3190 \hbox{\textsuperscript{\normalfont\@nameuse{@thefnmark#1}}}}
3191 %

```

`\normalvfootnoteX` `\normalvfootnoteX{⟨series⟩}{⟨text⟩}` does the `\insert` for the `⟨series⟩` and calls the series' `\footfmt . . .` to format the `⟨text⟩`.

```

3192 \notbool{parapparatus@}{\newcommand*}{\newcommand}{\normalvfootnoteX}[2]{%
3193   \insert\@nameuse{footins#1}\bgroup
3194   \noindent\csuse{bhooknoteX@#1}%
3195   \csuse{notefontsizeX@#1}%
3196   \footsplitskips
3197   \ifl@dpairing\ifl@dpaging\else%
3198     \setnoteswidthliketwocolumnsX@{#1}%
3199   \fi\fi%
3200   \setnotesXpositionliketwocolumns@{#1}%
3201   \spaceskip=\z@skip \xspaceskip=\z@skip
3202   \csuse{\csuse{footnote@dir}}{\@nameuse{footfmt#1}{#1}{#2}\egroup}
3203
3204 %

```

`\mpnormalvfootnoteX` The minipage version.

```

3205 \newcommand*{\mpnormalvfootnoteX}[2]{%
3206   \global\setbox\@nameuse{mpfootins#1}\vbox{%
3207     \unvbox\@nameuse{mpfootins#1}
3208     \noindent\csuse{bhooknoteX@#1}%
3209     \csuse{notefontsizeX@#1}%
3210     \hsize\columnwidth
3211     \@parboxrestore
3212     \color@begingroup
3213     \@nameuse{footfmt#1}{#1}{#2}\color@endgroup}}
3214
3215 %

```

`\normalfootfmtX` `\normalfootfmtX{⟨series⟩}{⟨text⟩}` typesets the footnote text, prepended by the marker.

```

3216 \notbool{parapparatus@}{\newcommand*}{\newcommand}{\normalfootfmtX}[2]{%
3217   \ifluatex%
3218     \textdir\footnote@luatextextdir%
3219     \pardir\footnote@luatexpardir%
3220     \par%
3221   \fi%
3222   \protected@edef\@currentlabel{%
3223     \@nameuse{thefnmark#1}%
3224   }%
3225   \ledsetnormalparstuffX{#1}%
3226   \hangindent=\csuse{hangindentX@#1}%
3227   \everypar{\hangindent=\csuse{hangindentX@#1}}%
3228   {\csuse{notenunfontX@#1}\@nameuse{footfootmark#1}}\strut%
3229   #2\strut\par}}
3230
3231 %

```



`\normalfootfootmarkX` `\normalfootfootmarkX{⟨series⟩}` is called by `\normalfootfmtX` to typeset the footnote marker in the footer before the footnote text.

```

3232 \newcommand*{\normalfootfootmarkX}[1]{%
3233   \textsuperscript{\@nameuse{@thefnmark#1}}}%
3234
3235 %

```

`\normalfootstartX` `\normalfootstartX{⟨series⟩}` is the `⟨series⟩` footnote starting macro used in the output routine.

```

3236 \newcommand*{\normalfootstartX}[1]{%
3237   \ifdimequal{Opt}{\prenotesX@}{}%
3238   {%
3239     \iftoggle{prenotesX@}{%
3240       \togglefalse{prenotesX@}%
3241       \skip\csname footins#1\endcsname=%
3242       \dimexpr\csuse{prenotesX@}+\csuse{afterruleX@#1}\relax%
3243     }%
3244     {}%
3245   }%
3246   \vskip\skip\csname footins#1\endcsname%
3247   \leftskip=\z@
3248   \rightskip=\z@
3249   \ifl@dpairing\else%
3250     \hsize=\old@hsize%
3251   \fi%
3252   \setnoteswidthliketwocolumnsX@{#1}%
3253   \setnotesXpositionliketwocolumns@{#1}%
3254   \print@footnoteXrule{#1}%
3255 }%
3256
3257 %

```

`\normalfootnoteruleX` The rule drawn before the footnote series group.

```

3258 \let\normalfootnoteruleX=\footnoterule
3259
3260 %

```

`\normalfootgroupX` `\normalfootgroupX{⟨series⟩}` sends the contents of the `⟨series⟩` insert box to the output page without alteration.

```

3261 \newcommand*{\normalfootgroupX}[1]{%
3262   \csuse{bhookgroupX@#1}%
3263   \unvbox\@nameuse{footins#1}%
3264   \hsize=\old@hsize%
3265 }%
3266
3267 %

```

`\mpnormalfootgroupX` The minipage version.

```

3268 \newcommand*{\mpnormalfootgroupX}[1]{%
3269   \vskip\skip\@nameuse{mpfootins#1}
3270   \ifl@dpairing\ifparledgroup%
3271     \leavevmode\marks\parledgroup@{begin}%
3272     \marks\parledgroup@series{#1}%
3273     \marks\parledgroup@type{footnoteX}%
3274   \fi\fi\normalcolor
3275   \ifparledgroup%
3276     \ifl@dpairing%
3277     \else%
3278       \setnoteswidthliketwocolumnsX@{#1}%
3279       \setnotesXpositionliketwocolumns@{#1}%
3280       \print@footnoteXrule{#1}%
3281     \fi%
3282   \else%
3283     \setnoteswidthliketwocolumnsX@{#1}%
3284     \setnotesXpositionliketwocolumns@{#1}%
3285     \print@footnoteXrule{#1}%
3286   \fi%
3287   \csuse{bhookgroupX@#1}%
3288   \unvbox\@nameuse{mpfootins#1}}
3289
3290 %

```

`\normalbfnoteX`<sub>91</sub>

```

3292 \newcommand{\normalbfnoteX}[2]{%
3293   \ifnumberedpar@
3294     \ifl@dpairing
3295       \protected@xdef\thisfootnote{\the\csname footnote#1@reading\endcsname
3296 }%
3297     \else%
3298       \protected@xdef\thisfootnote{\csuse{thefootnote#1}}%
3299     \fi%
3300   \ifledRcol%
3301     \ifluatex
3302       \footnotelang@lua[R]%
3303     \fi
3304     \@ifundefined{xpg@main@language}%if polyglossia
3305     {}%
3306     {\footnotelang@poly[R]}%
3307     \xright@appenditem{\noexpand\vbfnoteX{#1}{#2}{\expandonce\
thisfootnote}}%
3308       \to\inserts@listR
3309       \global\advance\insert@countR \One%
3310     \else%
3311       \ifluatex
3312         \footnotelang@lua%

```

```

3312 \fi
3313 \ifundefined{xpg@main@language}%if polyglossia
3314 {}%
3315 {\footnotelang@poly}%
3316 \xright@appenditem{\noexpand\vbfnoteX{#1}{#2}{\expandonce\
thisfootnote}}}%
3317 \to\inserts@list
3318 \global\advance\insert@count \@ne%
3319 \fi
3320 \fi\ignorespaces}
3321
3322 %

```

**\vbfnoteX** This command calls the correct footnote-inserting commands. It also gets the correct footnote number when typesetting parallel texts.

```

3323 \newcommand{\vbfnoteX}[3]{%
3324 \ifbool{expr{bool{l@dprintingpages} or bool{l@dprintingcolumns}}}%
3325 {%
3326 \global\expandafter\advance\csname footnote#1@typeset\endcsname by \
3327 \@ne%
3328 \setcounter{footnote#1}{\csuse{footnote#1@typeset}}}%
3329 \namedef{@thefnmark#1}{\csuse{thefootnote#1}}}%
3330 \immediate\write\@mainaux{%
3331 \global\csdef{footnote#1reading#3=typeset}{\the\csname footnote#1
3332 @typeset\endcsname}%
3333 }%
3334 {%
3335 \namedef{@thefnmark#1}{#3}%
3336 }%
3337 \@nameuse{regvfootnote#1}{#1}{#2}%
3338 }
3339 %

```

```

\numfootnoteX40 \newcommand{\numfootnoteX}[2]{%
3341 \ifnumberedpar@
3342 \edtext{}{\normalbfnoteX{#1}{#2}}%
3343 \else
3344 \@nameuse{regvfootnote#1}{#1}{#2}%
3345 \fi}
3346
3347 %

```

**arrangementX@normal** `\arrangementX@normal{<series>}` initialises the settings for the `<series>` footnotes. This should always be called for each series.

```

3348 \newcommand*{\arrangementX@normal}[1]{%
3349   \csgdef{series@displayX#1}{normal}
3350   \expandafter\let\csname footstart#1\endcsname=\normalfootstartX
3351   \expandafter\newcount\csname prevpage#1@num\endcsname
3352   \@namedef{@footnotemark#1}{\normal@footnotemarkX{#1}}
3353   \@namedef{bodyfootmark#1}{\normalbodyfootmarkX{#1}}
3354   \expandafter\let\csname regvfootnote#1\endcsname=\normalvfootnoteX
3355   \expandafter\let\csname vfootnote#1\endcsname=\vnumfootnoteX
3356   \expandafter\let\csname footfmt#1\endcsname=\normalfootfmtX
3357   \@namedef{footfootmark#1}{\normalfootfootmarkX{#1}}
3358   \expandafter\let\csname footgroup#1\endcsname=\normalfootgroupX
3359   \expandafter\let\csname footnoterule#1\endcsname=\normalfootnoteruleX
3360   \count\csname footins#1\endcsname=1000
3361   \csxdef{default@footins#1}{1000}%Use to have note only for one side
3362   \dimen\csname footins#1\endcsname=\csuse{maxhnotesX@#1}
3363   \skip\csname footins#1\endcsname=\csuse{beforenotesX@#1}%
3364   \advance\skip\csname footins#1\endcsname by\csuse{afterterruleX@#1}%
3365   %

```

Additions for minipages.

```

3366   \ifnoledgroup@else%
3367     \expandafter\let\csname mpvfootnote#1\endcsname=\mpnormalvfootnoteX
3368     \expandafter\let\csname mpfootgroup#1\endcsname=\mpnormalfootgroupX
3369     \count\csname mpfootins#1\endcsname=1000
3370     \dimen\csname mpfootins#1\endcsname=\csuse{maxhnotesX@#1}
3371     \skip\csname mpfootins#1\endcsname=\csuse{beforenotesX@#1}%
3372     \advance\skip\csname mpfootins#1\endcsname by\csuse{afterterruleX@#1}%
3373   \fi
3374 }
3375 %
3376 %

```

### XIII.4.3 Two columns footnotes

The following macros set footnotes in two columns. It is assumed that the length of each footnote is less than the column width.

```

\arrangementX@twocol  \newcommand*{\arrangementX@twocol}[1]{%
3378   \csgdef{series@displayX#1}{twocol}
3379   \expandafter\let\csname regvfootnote#1\endcsname=\twocolvfootnoteX
3380   \expandafter\let\csname footfmt#1\endcsname=\twocolfootfmtX
3381   \expandafter\let\csname footgroup#1\endcsname=\twocolfootgroupX
3382   \dimen\csname footins#1\endcsname=\csuse{maxhnotesX@#1}%
3383   \skip\csname footins#1\endcsname=\csuse{beforenotesX@#1}%
3384   \advance\skip\csname footins#1\endcsname by \csuse{afterterruleX@#1}\relax%
3385   \twocolfootsetupX{#1}
3386   \ifnoledgroup@else%
3387     \expandafter\let\csname mpvfootnote#1\endcsname=\mpnormalvfootnoteX
3388     \expandafter\let\csname mpfootgroup#1\endcsname=\mptwocolfootgroupX

```

```

3389 \skip\csname mpfootins#1\endcsname=\csuse{beforenotesX@#1}%
3390 \advance\skip\csname mpfootins#1\endcsname by\csuse{afterruleX@#1}
3391 \mptwocolfootsetupX{#1}
3392 \fi%
3393 }
3394
3395 %

```

`\twocolfootsetupX` `\twocolfootsetupX{<series>}`  
`\mptwocolfootsetupX`

```

3396 \newcommand*{\twocolfootsetupX}[1]{%
3397 \count\csname footins#1\endcsname 500
3398 \csxdef{default@footins#1}{500}%Use this to confine the notes to one
side only
3399 \multiply\dimen\csname footins#1\endcsname by \tw@}
3400 \newcommand*{\mptwocolfootsetupX}[1]{%
3401 \count\csname mpfootins#1\endcsname 500
3402 \multiply\dimen\csname mpfootins#1\endcsname by \tw@}
3403
3404 %

```

`\twocolvfootnoteX` `\twocolvfootnoteX{<series>}`

```

3405 \notbool{parapparatus@}{\newcommand*}{\newcommand}{\twocolvfootnoteX}[2]{%
3406 \insert\csname footins#1\endcsname\bgroup%
3407 \noindent\csuse{bhooknoteX@#1}%
3408 \csuse{notefontsizeX@#1}%
3409 \footssplitsskips%
3410 \spaceskip=\z@skip \xspaceskip=\z@skip%
3411 \@nameuse{footfmt#1}{#1}{#2}\egroup}
3412
3413 %

```

`\twocolfootfmtX` `\twocolfootfmtX{<series>}`

```

3414 \notbool{parapparatus@}{\newcommand*}{\newcommand}{\twocolfootfmtX}[2]{%
3415 \protected@edef\@currentlabel{%
3416 \@nameuse{@thefnmark#1}%
3417 }%
3418 \normal@pars%
3419 \hangindent=\csuse{hangindentX@#1}%
3420 \everypar{\hangindent=\csuse{hangindentX@#1}}%
3421 \hsize \csuse{hsizetwocolX@#1}%
3422 \nottoggle{parindentX@#1}{\parindent=\z@}{}%
3423 \tolerance=5000\relax%
3424 \par%
3425 \@tempdima=\parindent%
3426 \csuse{colalignX@#1}%
3427 \parindent=\@tempdima%
3428 {\csuse{notenumfontX@#1}\@nameuse{footfootmark#1}\strut%

```

```

3429 #2\strut\par}\allowbreak}
3430
3431 %

```

```

\twocolfootgroupX \twocolfootgroupX{<series>}
\mptwocolfootgroupX
3432 \newcommand*\twocolfootgroupX[1]{\csuse{bhookgroupX@#1}\csuse{
notefontsizeX@#1}
3433 \splittopskip=\ht\strutbox
3434 \expandafter
3435 \rigidbalance\csname footins#1\endcsname \tw@ \splittopskip}}
3436
3437 \newcommand*\mptwocolfootgroupX[1]{\%
3438 \vskip\skip\@nameuse{mpfootins#1}
3439 \ifl@dpairing\ifparledgroup%
3440 \leavevmode\marks\parledgroup@{begin}%
3441 \marks\parledgroup@series{#1}%
3442 \marks\parledgroup@type{footnoteX}%
3443 \fi\fi\normalcolor
3444 \ifparledgroup%
3445 \ifl@dpairing%
3446 \else%
3447 \setnoteswidthliketwocolumnsX@{#1}%
3448 \setnotesXpositionliketwocolumns@{#1}%
3449 \print@footnoteXrule{#1}%
3450 \fi%
3451 \else%
3452 \setnoteswidthliketwocolumnsX@{#1}%
3453 \setnotesXpositionliketwocolumns@{#1}%
3454 \print@footnoteXrule{#1}%
3455 \fi%
3456 \csuse{bhookgroupX@#1}%
3457 \splittopskip=\ht\strutbox
3458 \expandafter
3459 \rigidbalance\csname mpfootins#1\endcsname \tw@ \splittopskip}}
3460
3461 %

```

#### XIII.4.4 Three columns footnotes

The following macros set footnotes in three columns. It is assumed that the length of each footnote is less than the column width.

```

\arrangementX@threecol
3462 \newcommand*\arrangementX@threecol[1]{\%
3463 \csgdef{series@displayX#1}{threecol}
3464 \expandafter\let\csname regvfootnote#1\endcsname=\threecolvfootnoteX
3465 \expandafter\let\csname footfmt#1\endcsname=\threecolfootfmtX
3466 \expandafter\let\csname footgroup#1\endcsname=\threecolfootgroupX
3467 \dimen\csname footins#1\endcsname=\csuse{maxhnotesX@#1}%

```

```

3468 \skip\csname footins#1\endcsname=\csuse{beforenotesX@#1}%
3469 \advance\skip\csname footins#1\endcsname by \csuse{afterruleX@#1}\relax%
3470 \threecolfootsetupX{#1}
3471 \ifnoledgroup@else%
3472   \expandafter\let\csname mpvfootnote#1\endcsname=\mpnormalvfootnoteX
3473   \expandafter\let\csname mpfootgroup#1\endcsname=\mpthreecolfootgroupX
3474   \skip\csname mpfootins#1\endcsname=\csuse{beforenotesX@#1}%
3475   \advance\skip\csname mpfootins#1\endcsname by \csuse{afterruleX@#1}
3476   \mpthreecolfootsetupX{#1}
3477 \fi%
3478 }
3479
3480 %

```

`\threecolfootsetupX`    `\threecolfootsetupX{<series>}`

```

\mpthreecolfootsetupX
3481 \newcommand*{\threecolfootsetupX}[1]{%
3482   \count\csname footins#1\endcsname 333
3483   \csxdef{default@footins#1}{333}%Use this to confine the notes to one
side only
3484   \multiply\dimen\csname footins#1\endcsname by \thr@@}
3485 \newcommand*{\mpthreecolfootsetupX}[1]{%
3486   \count\csname mpfootins#1\endcsname 333
3487   \multiply\dimen\csname mpfootins#1\endcsname by \thr@@}
3488
3489 %

```

`\threecolvfootnoteX`    `\threecolvfootnoteX{<series>}{<text>}`

```

3490 \notbool{parapparatus@}{\newcommand*}{\newcommand}{\threecolvfootnoteX}[2]{
%
3491   \insert\csname footins#1\endcsname\bgroup%
3492   \noindent\csuse{bhooknoteX@#1}%
3493   \csuse{notefontsizeX@#1}
3494   \footplitskips%
3495   \@nameuse{footfmt#1}{#1}{#2}\egroup}
3496
3497 %

```

`\threecolfootfmtX`    `\threecolfootfmtX{<series>}`

```

3498 \notbool{parapparatus@}{\newcommand*}{\newcommand}{\threecolfootfmtX}[2]{%
3499   \protected@edef\@currentlabel{%
3500     \@nameuse{@thefnmark#1}%
3501   }%
3502   \hangindent=\csuse{hangindentX@#1}%
3503   \everypar{\hangindent=\csuse{hangindentX@#1}}%
3504   \normal@pars%
3505   \hsize \csuse{hsizethreecolX@#1}%
3506   \nottoggle{parindentX@#1}{\parindent=\z@}{}%

```

```

3507 \tolerance=5000\relax%
3508 \par%
3509 \@tempdima=\parindent%
3510 \csuse{colalignX@#1}%
3511 \parindent=\@tempdima%
3512 {\csuse{notenumfontX@#1}\@nameuse{footfootmark#1}\strut%
3513 #2\strut\par}\allowbreak}
3514
3515 %

```

```

\threecolfootgroupX \threecolfootgroupX{<series>}
\mpthreecolfootgroupX
3516 \newcommand*\threecolfootgroupX[1]{\csuse{bhookgroupX@#1}\csuse{
notefontsizeX@#1}
3517 \splittopskip=\ht\strutbox
3518 \expandafter
3519 \rigidbalance\csname footins#1\endcsname \thr@@ \splittopskip}}
3520
3521 \newcommand*\mpthreecolfootgroupX[1]{\{
3522 \vskip\skip\@nameuse{mpfootins#1}
3523 \ifl@dpairing\ifparledgroup
3524 \leavevmode\marks\parledgroup@{begin}%
3525 \marks\parledgroup@series{#1}%
3526 \marks\parledgroup@type{footnoteX}%
3527 \fi\fi\normalcolor
3528 \ifparledgroup%
3529 \ifl@dpairing%
3530 \else%
3531 \setnoteswidthliketwocolumnsX@{#1}%
3532 \setnotesXpositionliketwocolumns@{#1}%
3533 \print@footnoteXrule{#1}%
3534 \fi%
3535 \else%
3536 \setnoteswidthliketwocolumnsX@{#1}%
3537 \setnotesXpositionliketwocolumns@{#1}%
3538 \print@footnoteXrule{#1}%
3539 \fi%
3540 \csuse{bhookgroupX@#1}%
3541 \splittopskip=\ht\strutbox
3542 \expandafter
3543 \rigidbalance\csname mpfootins#1\endcsname \thr@@ \splittopskip}}
3544
3545 %

```

#### XIII.4.5 Paragraphed footnotes

The following macros set footnotes as one paragraph.

```
\arrangementX@threecol \footparagraphX{<series>}
```



```

3546 \newcommand*{\arrangementX@paragraph}[1]{%
3547   \csgdef{series@displayX#1}{paragraph}%
3548   \expandafter\newcount\csname #1prevpage@num\endcsname
3549   \expandafter\let\csname footstart#1\endcsname=\parafootstartX
3550   \expandafter\let\csname regvfootnote#1\endcsname=\para@vfootnoteX
3551   \expandafter\let\csname footfmt#1\endcsname=\parafootfmtX
3552   \expandafter\let\csname footgroup#1\endcsname=\para@footgroupX
3553   \expandafter\let\csname footnoterule#1\endcsname=\normalfootnoteruleX
3554   \count\csname footins#1\endcsname=1000
3555   \csxdef{default@footins#1}{1000}%Use this to confine the notes to one
side only
3556   \dimen\csname footins#1\endcsname=\csuse{maxhnotesX@#1}
3557   \skip\csname footins#1\endcsname=\csuse{beforenotesX@#1}%
3558   \advance\skip\csname footins#1\endcsname by\csuse{afterruleX@#1}%
3559   \para@footsetupX{#1}
3560   \ifnoledgroup@else
3561     \expandafter\let\csname mpvfootnote#1\endcsname=\mppara@vfootnoteX
3562     \expandafter\let\csname mpfootgroup#1\endcsname=\mppara@footgroupX
3563     \count\csname mpfootins#1\endcsname=1000
3564     \dimen\csname mpfootins#1\endcsname=\csuse{maxhnotesX@#1}
3565     \skip\csname mpfootins#1\endcsname=\csuse{beforenotesX@#1}%
3566     \advance\skip\csname mpfootins#1\endcsname by\csuse{afterruleX@#1}%
3567   \fi
3568 }
3569
3570 %

```

`\para@footsetupX` `\para@footsetupX{<series>}`

```

3571 \newcommand*{\para@footsetupX}[1]{\csuse{bhookgroupX@#1}\csuse{
notefontsizeX@#1}
3572   \setnoteswidthliketwocolumnsX@#1}%
3573   \dimen0=\baselineskip
3574   \multiply\dimen0 by 1024
3575   \divide\dimen0 by \columnwidth \multiply\dimen0 by \footfudgefiddle\relax
%
3576   \expandafter
3577   \xdef\csname footfudgefactor#1\endcsname{%
3578     \expandafter\strip@pt\dimen0 }}
3579
3580 %

```

`\parafootstartX` `\parafootstartX{<series>}`

```

3581 \newcommand*{\parafootstartX}[1]{%
3582   \ifdimequal{Opt}{\prenotesX@}{}%
3583   {%
3584     \iftoggle{prenotesX@}{%
3585       \togglefalse{prenotesX@}%
3586       \skip\csname footins#1\endcsname=%

```

```

3587         \dimexpr\csuse{prenotesX@}+\csuse{afterruleX@#1}\relax%
3588         }%
3589     {}%
3590 }%
3591 \leftskip=\z@
3592 \rightskip=\z@
3593 \nottoggle{parindentX@#1}{\parindent=\z@}{}%
3594 \vskip\skip\@nameuse{footins#1}%
3595 \setnoteswidthliketwocolumnsX@{#1}%
3596 \setnotesXpositionliketwocolumns@{#1}%
3597 \print@footnoteXrule{#1}%
3598 }
3599
3600 %

```

```

\para@vfootnoteX \para@vfootnoteX{<series>}{<text>}
\mppara@vfootnoteX
3601 \newcommand*{\para@vfootnoteX}[2]{%
3602   \insert\csname footins#1\endcsname
3603   \bgroup
3604     \csuse{notefontsizeX@#1}
3605     \footsplitskips
3606     \setbox0=\vbox{\hsize=\maxdimen%
3607       \let\bidir@RTL@everypar\@empty%
3608       \noindent\csuse{bhooknoteX@#1}%
3609       \@nameuse{footfmt#1}{#1}{#2}}%
3610     \setbox0=\hbox{\unvXH{0}{#1}}%
3611     \dp0=\z@
3612     \ht0=\csname footfudgefactor#1\endcsname\wd0
3613     \box0
3614     \penalty0
3615   \egroup}
3616 \newcommand*{\mppara@vfootnoteX}[2]{%
3617   \global\setbox\@nameuse{mpfootins#1}\vbox{%
3618     \unvbox\@nameuse{mpfootins#1}
3619     \csuse{notefontsizeX@#1}
3620     \footsplitskips
3621     \setbox0=\vbox{\hsize=\maxdimen%
3622       \let\bidir@RTL@everypar\@empty%
3623       \noindent\color@begingroup%
3624       \csuse{bhooknoteX@#1}%
3625       \@nameuse{footfmt#1}{#1}{#2}\color@endgroup}%
3626     \setbox0=\hbox{\unvXH{0}{#1}}%
3627     \dp0=\z@
3628     \ht0=\csname footfudgefactor#1\endcsname\wd0
3629     \box0
3630     \penalty0}}
3631
3632 %

```

```

\unvxhX33 \newcommand*{\unvxhX}[2]{% 2th is optional for retro-compatibility
3634 \setbox0=\vbox{\unvbox#1%
3635 \global\setbox1=\lastbox}%
3636 \unhbox1
3637 \unskip          % remove \rightskip,
3638 \unskip          % remove \parfillskip,
3639 \unpenalty       % remove \penalty of 10000,
3640 \hskip\csuse{afternoteX@#2}} % but add the glue to go between the notes
3641
3642 %

```

`\parafootfmtX` `\parafootfmtX{<series>}`

```

3643 \newcommand*{\parafootfmtX}[2]{%
3644 \protected@edef\@currentlabel{%
3645 \@nameuse{@thefnmark#1}%
3646 }%
3647 \insertparafootsepX{#1}%
3648 \ledsetnormalparstuff@common%
3649 {\csuse{notenumfontX@#1}%
3650 \csuse{notenumfontX@#1}%
3651 \@nameuse{footfootmark#1}%
3652 \strut%
3653 #2\penalty-10}}
3654
3655 %

```

`\para@footgroupX` `\para@footgroupX{<series>}`

`\mppara@footgroupX`

```

3656 \newcommand*{\para@footgroupX}[1]{%
3657 \unvbox\csname footins#1\endcsname
3658 \ifcsstring{raggedX@#1}{L}{\RaggedLeft}{}%
3659 \ifcsstring{raggedX@#1}{R}{\RaggedRight}{}%
3660 \makehboxofhboxes
3661 \setbox0=\hbox{\unhbox0 \removehboxes}%
3662 \csuse{bhookgroupX@#1}
3663 \csuse{notefontsizeX@#1}
3664 \unhbox0\par}
3665
3666 \newcommand*{\mppara@footgroupX}[1]{%
3667 \setnoteswidthliketwocolumnsX@{#1}%
3668 \vskip\skip\@nameuse{mpfootins#1}
3669 \ifl@dpairing\ifparledgroup
3670 \leavevmode%
3671 \leavevmode\marks\parledgroup@{begin}%
3672 \marks\parledgroup@series{#1}%
3673 \marks\parledgroup@type{footnoteX}%
3674 \fi\fi\normalcolor
3675 \ifparledgroup%
3676 \ifl@dpairing%

```

```

3677 \else%
3678 \setnoteswidthliketwocolumnsX@{#1}%
3679 \setnotesXpositionliketwocolumns@{#1}%
3680 \print@footnoteXrule{#1}%
3681 \fi%
3682 \else%
3683 \setnoteswidthliketwocolumnsX@{#1}%
3684 \setnotesXpositionliketwocolumns@{#1}%
3685 \print@footnoteXrule{#1}%
3686 \fi%
3687 \unvbox\csname mpfootins#1\endcsname
3688 \ifcsstring{raggedX@#1}{L}{\RaggedLeft}{}%
3689 \ifcsstring{raggedX@#1}{R}{\RaggedRight}{}%
3690 \makehboxofhboxes
3691 \setbox0=\hbox{\unhbox0 \removehboxes}%
3692 \csuse{bhookgroupX@#1}%
3693 \csuse{notefontsizeX@#1}
3694 \unhbox0\par}}
3695
3696 %

```

**Insertion of the footnotes separator** The command `\insertparafootsepX{<series>}` must be called at the beginning of `\parafootftmX`.

```

\prevpage@num97 \newcommand{\insertparafootsepX}[1]{%
\Xinsertparafootsep98 \ifnumequal{\csuse{prevpage#1@num}}{\page@num}%
3699 {\csuse{parafootsepX@#1}}%
3700 {}%
3701 }
3702 %

```

## XIV Code common to both critical and familiar footnote in normal arrangement

`\par` should always be redefined to `\endgraf` within the format macro (this is what `\normal@pars` does), to override tricky material in the main text to get the lines numbered automatically (as set up by `\autopar`, for example).

In the case of footnote arranged in a “normal” way, we also must set some setting for paragraph indent and text direction when using `LuaLaTeX`.

That why we have defined `\ledsetnormalparstuff@common` in order to make this setting for both familiar and critical notes. This command is called by command to make specific setting to critical or familiar footnote.

```

\ledsetnormalparstuff@common03 \newcommand*{\ledsetnormalparstuff@common}{%
\Xledsetnormalparstuff04 \ifluatex%
\ledsetnormalparstuffX

```

```

3705 \textdir\footnote@luatexttextdir%
3706 \pardir\footnote@luatexpardir%
3707 \fi%
3708 \csuse{\csuse{footnote@dir}}}%
3709 \normal@pars%
3710 \parfillskip \z@ \@plus 1fil}%
3711
3712 \newcommand*{\Xledsetnormalparstuff}[1]{%
3713 \ledsetnormalparstuff@common%
3714 \nottoggle{Xparindent@#1}{\parindent=\z@}{\hspace{\parindent}}}%
3715 }%
3716
3717 \newcommand*{\ledsetnormalparstuffX}[1]{%
3718 \ledsetnormalparstuff@common%
3719 \nottoggle{parindentX@#1}{\parindent=\z@}{\hspace{\parindent}}}%
3720 }%
3721 %

```

## XV Footnotes' width for two columns

We define here some commands which make sense only with `reledpar`, but must be called when defining notes parameters. These commands change the width of block notes to allow them to have the same size than two parallel columns.

`\old@hsize` These two commands are called at the beginning of critical or familiar notes groups. They set, if the option is enabled, the `\hsize`. They are also called at the on the setup for paragraphed notes.

`\noteswidthliketwocolumns@`

`\noteswidthliketwocolumnsX@`

```

3722
3723 \newdimen\old@hsize%
3724 \AtBeginDocument{\old@hsize=\hsize}%
3725
3726 \newcommand{\setXnoteswidthliketwocolumns@}[1]{%
3727 \global\let\hsize@fornote=\hsize%
3728 \global\old@hsize=\hsize%
3729 \iftoggle{Xnoteswidthliketwocolumns@#1}%
3730 {%
3731 \csuse{setwidthliketwocolumns@\columns@position}%
3732 \global\let\hsize@fornote=\hsize%
3733 }%
3734 }%
3735 \let\hsize=\hsize@fornote%
3736 \let\columnwidth=\hsize@fornote%
3737 }%
3738
3739 \newcommand{\setnoteswidthliketwocolumnsX@}[1]{%
3740 \global\let\hsize@fornote=\hsize%
3741 \global\old@hsize=\hsize%
3742 \iftoggle{noteswidthliketwocolumnsX@#1}%

```

```

3743     {%
3744     \csuse{setwidthliketwocolumns@\columns@position}%
3745     \global\let\hsize@fornote=\hsize%
3746     }%
3747     {}%
3748     \let\hsize=\hsize@fornote%
3749     \let\columnwidth=\hsize@fornote%
3750 }%
3751
3752 %

```

`\setXnotespositionliketwocolumns@` These two commands set the position of the critical / familiar footnotes, depending on the hooks `Xnoteswidthliketwocolumns` and `noteswidthliketwocolumnsX`. They call commands which are defined only in `reledpar`, because this feature has no sense without `reledpar`.

`\setnotesXpositionliketwocolumns@`

```

3753 \newcommand{\setXnotespositionliketwocolumns@}[1]{%
3754   \iftoggle{Xnoteswidthliketwocolumns@#1}{%
3755     \csuse{setnotespositionliketwocolumns@\columns@position}%
3756   }{}%
3757 }%
3758
3759 \newcommand{\setnotesXpositionliketwocolumns@}[1]{%
3760   \iftoggle{noteswidthliketwocolumnsX@#1}{%
3761     \csuse{setnotespositionliketwocolumns@\columns@position}%
3762   }{}%
3763 }%
3764
3765 %

```

## XVI Footnotes' order

`\fnpos` The `\fnpos` and `\mpfnpos` simply place their arguments in `\@fnpos` and `\@mpfnpos`, which will be used later in the output routine.

`\mpfnpos`

```

3766 \def\@fnpos{familiar-critical}
3767 \def\@mpfnpos{critical-familiar}
3768 \newcommand{\fnpos}[1]{\xdef\@fnpos{#1}}
3769 \newcommand{\mpfnpos}[1]{\xdef\@mpfnpos{#1}}
3770 %

```

## XVII Footnotes' rule

Because the footnotes' rules can be shifted to the right when footnotes are set like two columns, we do not print them directly, but we put them in a `\vbox`.

```

\print@Xfootnoterule 71 \newcommand{\print@Xfootnoterule}[1]{%
\print@footnotexrule 72 \vskip-\csuse{Xafterrule@#1}%Because count in \dimen\csuse{#1footins}
3773 \nointerlineskip%
3774 \moveleft-\leftskip\vbox{\csuse{#1footnoterule}}%
3775 \nointerlineskip%
3776 \vskip\csuse{Xafterrule@#1}%
3777 }%
3778
3779 \newcommand{\print@footnotexrule}[1]{%
3780 \vskip-\csuse{afterruleX@#1}%Because count in \dimen\csuse{footins#1}
3781 \nointerlineskip%
3782 \moveleft-\leftskip\vbox{\csuse{footnoterule#1}}%
3783 \nointerlineskip%
3784 \vskip\csuse{afterruleX@#1}%
3785 }%
3786 %
3787 %

```

## XVIII Specific skip for first series of footnotes

### XVIII.0.1 Overview

`\Xbeforenotes` inserts a specific skip for the first series of notes in a page. As we can't know in advance which series will be the first, we call `\prepare@preXnotes` before inserting any critical notes, in order to prevent page number overlapping.

1. If it is the first note of the current page, it changes the footnote skip for the series to the value specified to `\Xbeforenotes`. It also keeps the series of the note as the first one of the current page.
2. If it is not the first note of the current page:
  - If the current series is printed after the series kept as the first of the current page, then nothing happens.
  - If the current series is printed before the series kept as the first of the current page, then it changes the footnote skip of the current series to the value normally used by the series which was marked as the first of the page. It also keeps the current series as the new first one of the current page.

For example, suppose the series order is A,B. We call first a `\Bfootnote` and a `\Afootnote`. The only skips used are, finally, the skip specific to the first series of the page, and the skip for the B series. If we have not called `\Afootnote`, the only skip used is the skip specific to the first series of the page.

That is perfect.

The series skip and the first series of the current page are reset before the footnotes are printed. Then, the `footstart` macros manage the problem of the first series of the page.

After the rule, the space which is defined by `\Xafterrule` does not depend on whether the series is the first one of the page or not. So we use its normal value for each series.

And now, implementation !

### XVIII.0.2 User level command

`\preXnotes@` If user redefines `\preXnotes@`, via `\preXnotes` to a value greater than 0 pt, this skip will be added before first series notes instead of the notes skip.

```

3788 \newtoggle{preXnotes@}
3789 \toggletrue{preXnotes@}
3790 \newcommand{\preXnotes@}{Opt}
3791 \newcommand*{\preXnotes}[1]{\renewcommand{\preXnotes@}{#1}}
3792 %

```

The same, but for familiar footnotes.

```

\preXnotes 93 \newtoggle{prenotesX@}
\preXnotes@ 94 \toggletrue{prenotesX@}
3795 \newcommand{\prenotesX@}{Opt}
3796 \newcommand*{\prenotesX}[1]{\renewcommand{\prenotesX@}{#1}}
3797 %

```

### XVIII.0.3 Internal commands

```

firstXseries@ 98 \gdef\firstXseries@{}
prepare@preXnotes 99 \newcommand{\prepare@preXnotes}[1]{%
3800   \ifdimequal{Opt}{\preXnotes@}%
3801   }{%
3802   {%
3803     \IfStrEq{\firstXseries@}{}{%
3804       \global\skip\csuse{#1footins}=\preXnotes@%
3805       \global\advance\skip\csname #1footins\endcsname by\csuse{Xafterrule@
#1}%
3806       \gdef\firstXseries@{#1}%
3807     }%
3808     {%
3809       \ifseriesbefore{#1}{\firstXseries@}%
3810       {%
3811         \global\skip\csuse{#1footins}=\csuse{Xbeforenotes@firstXseries@}%
3812         \global\advance\skip\csname #1footins\endcsname by\csuse{Xafterrule@
#1}%
3813         \gdef\firstXseries@{#1}%
3814       }%
3815       {%
3816         }%
3817     }%

```



```

3818 }
3819 %

```

The same thing is required for familiar notes and `\prenotesX`.

```

firstseriesX@ \gdef\firstseriesX@{}
prepare@prenotesX@ \newcommand{\prepare@prenotesX}[1]{%
3822 \ifdimequal{0pt}{\prenotesX@}%
3823 {}%
3824 {}%
3825 \IfStrEq{\firstseriesX@}{-}{%
3826 \global\skip\csuse{footins#1}=\prenotesX@%
3827 \global\advance\skip\csname footins#1\endcsname by\csuse{afterruleX@
#1}%
3828 \gdef\firstseriesX@{#1}%
3829 }%
3830 {}%
3831 \ifseriesbefore{#1}{\firstseriesX@}%
3832 {}%
3833 \global\skip\csuse{footins#1}=\csuse{beforenotesX@\firstseriesX@}%
3834 \global\advance\skip\csname footins#1\endcsname by\csuse{afterruleX@
#1}%
3835 \gdef\firstXseries@{#1}%
3836 }%
3837 {}%
3838 }%
3839 }%
3840 }
3841 %

```

## XIX Endnotes

First, check the `noend` option.

```

3842 \ifbool{noend@}{-}{%Used instead of \ifnoend@ to prevent expansion problem
3843 %

```

`\l@dend@open` and `\l@dend@close` are the macros that are used to open and close the endnote file. Note that all our writing to this file is `\immediate`: all page and line numbers for the endnotes are generated by the same mechanism we use for the footnotes, so that there is no need to defer any writing to catch information from the output routine. The argument of these two command is the series letter.

```

3844 \newcommand{\l@dend@open}[1]{%
3845 \global\booltrue{l@dend@#1}%
3846 \expandafter\immediate%
3847 \expandafter\openout%
3848 \csname l@d@#1end\endcsname%

```

```

3849     =\jobname.#1end\relax%
3850 }%
3851 \newcommand{\l@dend@close}[1]{%
3852   \global\boolfalse{l@dend@#1}%
3853   \expandafter\immediate%
3854   \expandafter\closeout\csname l@d@#1end\endcsname%
3855 }%
3856
3857 %

```

**\l@dend@stuff** \l@dend@stuff is used by \beginnumbering to do everything that is necessary for the endnotes at the start of each section: it opens the \l@d@end file, if necessary, and writes the section number to the endnote file.

```

3858 \newcommand{\l@dend@stuff}{%
3859   \def\do##1{%
3860     \ifbool{l@dend@##1}{}%
3861     {\l@dend@open{##1}}%
3862     \expandafter\immediate\expandafter\write\csname l@d@##1end\endcsname{\
string\l@d@section{\the\section@num}}}%
3863   }%
3864   \dolistloop{@series}%
3865 }%
3866
3867 %

```

**\endprint** The \endprint here is nearly identical in its functioning to \normalfootfmt.  
**\l@d@section** The endnote file also contains \l@d@section commands, which supply the section numbers from the main text; standard reledmac does nothing with this information, but it is there if you want to write custom macros to do something with it. Arguments are:

- #1 Line numbers and font selection.
- #2 Lemma.
- #3 Note content.
- #4 Series.
- #5 Optional argument of \Xendnote.
- #6 Side (L or R).

```

3868 \global\notbool{parapparatus@}{\long}\def\endprint#1#2#3#4#5#6{%
3869   \hangindent=\csuse{Xendhangindent@#4}%
3870   \ifXendinsertsep%
3871     \hskip\csuse{Xendafternote@#4}%
3872     \csuse{Xendsep@#4}%
3873   \else%

```

```

3874 \iftoggle{Xendparagraph@#4}%
3875   {\global\Xendinsertsep@true}%
3876   }%
3877 \fi%
3878 \xdef\@currentseries{#4}%
3879 \def\do##1{%
3880   \setkeys[mac]{truefootnoteoption}{##1}%
3881 }%
3882 \notblank{#5}{\docsvlist{#5}}{%}%
3883 \csuse{Xendbhooknote@#4}%
3884 \csuse{Xendnotefontsize@#4}%
3885 \IfStrEq{#6}{R}{\ledRcol@true}{}%
3886 \printlineendnote{#1}{#4}%
3887 \IfStrEq{#6}{R}{\ledRcol@false}{}%
3888 \nottoggle{Xendlemmadisablefontselection@#4}%
3889   {\select@lemmafont#1|#2}%
3890   {#2}%
3891 \ifboolexpr{%
3892   togl {nosep@}%
3893   or test{\ifcseempty{Xendlemmaseparator@#4}}%
3894 }%
3895 {\hskip\csuse{Xendinplaceoflemmaseparator@#4}}%
3896 {\nobreak%
3897   \hskip\csuse{Xendbeforelemmaseparator@#4}%
3898   \csuse{Xendlemmaseparator@#4}%
3899   \hskip\csuse{Xendafterlemmaseparator@#4}%
3900 }%
3901 #3%
3902 \nottoggle{Xendparagraph@#4}{\par}{}%
3903 \def\do##1{%
3904   \setkeys[mac]{falsefootnoteoption}{##1}%
3905 }%
3906 \notblank{#5}{\docsvlist{#5}}{%}%
3907 }}%
3908
3909 \let\l@d@section=\@gobble
3910
3911 %

```

**\printlineendnote** This macro controls, in endnote, whether the line number is printed or not, according to the series options. Its first argument is the information about lines; its second is the series of the footnote.

```

3912 \newcommand{\printlineendnote}[2]{%
3913   \l@dp@rsefeetsec#1|%
3914   \iftoggle{Xendnumberonlyfirstintwolines@#2}{%
3915     \edef\lineinfo@{\l@d@p@rsestartpage - \l@d@p@rsestartline - \
3916       \l@d@p@rsestartsub - \l@d@p@rseendpage - \l@d@p@rseendline - \
3917       \l@d@p@rseendsub}%
3918   }%

```

```

3917 {%
3918 \edef\lineinfo@{\l@dparsedstartpage - \l@dparsedstartline - \
l@dparsedstartsub}%
3919 }%
3920 \ifboolexpr{%
3921 togl {nonum@}%
3922 or togl {Xendnonumber@#2}%
3923 }%
3924 {\hspace{\csuse{Xendinplaceofnumber@#2}}}%
3925 {%
3926 \iftoggle{Xendnumberonlyfirstinline@#2}%
3927 {\ifcsdef{prevendline#2}%
3928 {\ifcsequal{prevendline#2}{\lineinfo@}%
3929 {%
3930 \csuse{Xendbhookinplaceofnumber@#2}%
3931 \ifcsequal{Xendsymmlinenumber@#2}%
3932 {\hspace{\csuse{Xendinplaceofnumber@#2}}}%
3933 {\printsymmlineendnotearea{#2}}}%
3934 \csuse{Xendahookinplaceofnumber@#2}%
3935 }%
3936 {\printlineendnotearea{#1}{#2}}}%
3937 {\printlineendnotearea{#1}{#2}}}%
3938 }%
3939 {\printlineendnotearea{#1}{#2}}%We keep every time line
3940 \csxdef{prevendline#2}{\lineinfo@}%
3941 }%
3942 }%
3943 %

```

```

\printsymmlineendnotearea 3944 \newcommand{\printsymmlineendnotearea}[1]{%
3945 \hspace{\csuse{Xendbeforesymmlinenumber@#1}}%
3946 \csuse{Xendnotenumfont@#1}%
3947 \ifdimequal{\csuse{Xendboxsymmlinenumber@#1}}{\z@}%
3948 {\csuse{Xendsymmlinenumber@#1}}%
3949 {\hbox to \csuse{Xendboxsymmlinenumber@#1}%
3950 {\csuse{Xendsymmlinenumber@#1}\hfill}%
3951 }%
3952 \hspace{\csuse{Xendaftersymmlinenumber@#1}}%
3953 }%
3954 %

```

**\printlineendnotearea** This macro prints the space before the line number, changes the font, then prints the line number and the space after it. It is called by `\endprint` depending of the options about repeating line numbers. The first argument is line information, the second is the notes series (A, B, C, etc.)

```

3955 \newcommand{\printlineendnotearea}[2]{%
3956 \csuse{Xendbhooklinenumber@#2}%
3957 \hspace{\csuse{Xendbeforenumber@#2}}%

```

```

3958 \bgroup%
3959 \csuse{Xendnotenumfont@#2}%
3960 \ifdimequal{\csuse{Xendboxlinenum@#2}}{0pt}%
3961 {\printendlines#1||\ifledRcol@\@Rlineflag\fi}%
3962 {\leavevmode%
3963 \hbox to \csuse{Xendboxlinenum@#2}%
3964 {%
3965 \IfSubStr{RC}{\csuse{Xendboxlinenumalign@#2}}{\hfill}{}}%
3966 \printendlines#1||\ifledRcol@\@Rlineflag\fi%
3967 \IfSubStr{LC}{\csuse{Xendboxlinenumalign@#2}}{\hfill}{}}%
3968 }}%
3969 \egroup%
3970 \hspace{\csuse{Xendafternumber@#2}}%
3971 \csuse{Xendahooklinenum@#2}%
3972 }%
3973 %

```

**\doendnotes** \doendnotes is the command you use to print one series of endnotes; it takes one argument: the series letter of the note series you want to print. \Xendinsertsep@ is set to true at the first note of the series, and to false at the last one.

```

3974 \newif\ifXendinsertsep%
3975 \newcommand*{\doendnotes}[1]{%
3976 \l@dend@close{#1}%
3977 \beginngroup
3978 \makeatletter
3979 \expandafter\let\csname #1end\endcsname=\endprint
3980 \input\jobname.#1end%
3981 \global\Xendinsertsep@false%
3982 \endgroup}
3983 %

```

**\doendnotesbysection** \doendnotesbysection is a variant of the previous macro. While \doendnotes print endnotes for all of numbered sections \doendnotesbysection print the endnotes for the first numbered section at its first call for a series, then for the second section at its second call for the same series, then for the third section at its third call for the same series, and so on.

```

3984 \newcommand*{\doendnotesbysection}[1]{%
3985 \l@dend@close{#1}%
3986 \global\expandafter\advance\csname #1end@bysection\endcsname by 1%
3987 \beginngroup%
3988 \makeatletter%
3989 \def\l@d@section##1{%
3990 \ifnumequal{##1}{\csname #1end@bysection\endcsname}%
3991 {\cslet{#1end}{\endprint}}%
3992 {\cslet{#1end}{\@gobblefive}}%
3993 }%
3994 \input\jobname.#1end%
3995 \global\Xendinsertsep@false%

```

```

3996 \endgroup%
3997 }%
3998 %

```

We close now the conditional period, which depends on `\ifnoend@`, because the following commands can be used by other commands than those specific to endnotes.

```

3999 }%
4000 %

```

**\setprintendlines** The `\printendlines` macro is similar to `\printlines` but is for printing endnotes rather than footnotes.

The principal difference between foot- and endnotes is that footnotes are printed on the page where they are specified but endnotes are printed at a different point in the document. We need an indication of the source of an endnote; `\setprintendlines` provides this by always printing the page number. The coding is slightly simpler than `\setprintlines`.

First of all, we print the second page number only if the ending page number is different from the starting page number.

```

4001 \newcommand*{\setprintendlines}[6]{%
4002   \l@dpnumfalse \l@ddashfalse
4003   \ifnum#4=#1 \else
4004     \l@dpnumtrue
4005     \l@ddashtrue
4006   \fi
4007 %

```

We print the ending line number if: (1) we are printing the ending page number, or (2) it is different from the starting line number.

```

4008   \ifl@dpnum \l@delintrue \else \l@delinfalse \fi
4009   \ifnum#2=#5 \else
4010     \l@delintrue
4011     \l@ddashtrue
4012   \fi
4013 %

```

We print the starting sub-line if it is nonzero.

```

4014   \l@ssubfalse
4015   \ifnum#3=0 \else
4016     \l@ssubtrue
4017   \fi
4018 %

```

We print the ending sub-line if it is nonzero and: (1) it is different from the starting sub-line number, or (2) the ending line number is being printed.

```

4019   \l@eslfalse
4020   \ifnum#6=0 \else
4021     \ifnum#6=#3

```

```

4022     \ifl@d@elin \l@d@esltrue \else \l@d@eslfalse \fi
4023     \else
4024         \l@d@esltrue
4025         \l@d@dashtrue
4026     \fi
4027 \fi%
4028 %

4029 \ifl@d@dash%
4030 \ifboolexpr{togl{fulllines@} or test{\ifcempty{Xendtwolines@
@currentseries}}}%
4031 {}%
4032 {%
4033 \setistwofollowinglines{#1}{#2}{#4}{#5}%
4034 \ifboolexpr{%
4035     (%
4036         togl {Xendtwolinesbutnotmore@ \@currentseries}%
4037         and not%
4038         (%
4039             bool {istwofollowinglines@}%
4040         )%
4041     )%
4042     or%
4043     (%
4044         (not test{\ifnumequal{#1}{#4}})%
4045         and togl{Xendtwolinesonlyinsamepage@ \@currentseries}%
4046     )%
4047 }%
4048 {}%
4049 {%
4050 \l@d@dashfalse%
4051 \l@d@xtwolinestrue%
4052 \l@d@elinfalse%
4053 \l@d@eslfalse%
4054 \ifcempty{Xendmorethantwolines@ \@currentseries}%
4055 {}%
4056 {\ifistwofollowinglines@ \else%
4057     \l@d@Xmorethantwolinestrue%
4058     \fi%
4059 }%
4060 }%
4061 }%
4062 \fi%
4063 %

End of \setprintendlines.

4064 }%
4065 %

```

`\printendlines` Now we are ready to print it all.

```

4066 \def\printendlines#1|#2|#3|#4|#5|#6|#7|#8|{\begingroup
4067   \setprintendlines{#1}{#2}{#3}{#4}{#5}{#6}%
4068 %

```

The only subtlety left here is when to print a period between numbers. But the only instance in which this is tricky is for the ending sub-line number: it could be coming after the starting sub-line number (in which case we want only the dash) or after an ending line number (in which case we need to insert a period).

So, first, print the start lines.

```

4069   \ifdimequal{\csuse{Xendboxstartlinenum@\@currentseries}}{0pt}%
4070     {\bgroup}%
4071     {\leavevmode\hbox to \csuse{Xendboxstartlinenum@\@currentseries}\bgroup
\hfill}%
4072   \printnpnum{#1}%
4073   \ifl@d@dash%
4074   \ifl@d@pnum%
4075     \csuse{Xendlineprefixsingle@\@currentseries}%
4076   \else%
4077     \ifcempty{Xendlineprefixmore@\@currentseries}%
4078       {\csuse{Xendlineprefixsingle@\@currentseries}}
4079       {\csuse{Xendlineprefixmore@\@currentseries}}%
4080   \fi%
4081   \else%
4082     \csuse{Xendlineprefixsingle@\@currentseries}%
4083   \fi%
4084   \linenumrep{#2}\iftoggle{Xendlineflag@\@currentseries}{\ifledRcol@
@Rlineflag\fi}{}%
4085   \ifl@d@ssub%
4086     \csuse{Xendsublinesep@\@currentseries}%
4087     \sublinenumrep{#3}%
4088   \fi%
4089   \egroup%
4090 %

```

And now, print the dash + the end line number, or the line number range symbol.

```

4091   \ifdimequal{\csuse{Xendboxendlinenum@\@currentseries}}{0pt}%
4092     {\bgroup}%
4093     {\hbox to \csuse{Xendboxendlinenum@\@currentseries}\bgroup}%
4094   \ifl@d@Xtwolines%
4095     \ifl@d@Xmorethantwolines%
4096       \csuse{Xendmorethantwolines@\@currentseries}%
4097     \else%
4098       \csuse{Xendtwolines@\@currentseries}%
4099     \fi%
4100   \else%
4101     \ifl@d@dash%
4102       \ifdefined\linangesep@%
4103         \linangesep@%
4104       \else%

```



```

4105 \csuse{Xendlinrangeseparator@ \@currentseries}%
4106 \fi%
4107 \fi%
4108 \ifl@d@pnum \printnpnum{#4}\fi%
4109 \ifl@d@elin%
4110 \ifl@d@pnum\csuse{Xendlineprefixsingle@ \@currentseries}\fi%
4111 \linenumrep{#5}%
4112 \iftoggle{Xendlineflag@ \@currentseries}{\ifledRcol@ \@Rlineflag\fi}{}%
4113 \fi%
4114 \ifl@d@esl%
4115 \ifl@d@elin%
4116 \csuse{Xendsublinesep@ \@currentseries}%
4117 \fi%
4118 \sublinenumrep{#6}%
4119 \fi%
4120 \fi%
4121 \ifdimequal{\csuse{Xendboxendlinenum@ \@currentseries}}{0pt}%
4122 {}%
4123 {\hfill}%Prevent underfull hbox
4124 \egroup%
4125 \endgroup%
4126 }%
4127
4128 %

```

**\printnpnum** A macro to print a page number in an endnote. Should not be override anymore

```

4129 \newcommand*{\printnpnum}[1]{\csuse{Xendbeforepagenumber@ \@currentseries}
4130 \#1\csuse{Xendafterpagenumber@ \@currentseries}}
4131 %

```

## XX Generate series of notes

In this section, X means the name of the series (A, B etc.)

**\series** \series\series creates one more new series. It is a public command, which just loops on the private command \newseries@.

```

4132 \newcommand{\newseries}[1]{%
4133 \def\do##1{\newseries@{##1}}%
4134 \docsvlist{#1}
4135 }
4136 %

```

**\@series** The \series@ macro is an etoolbox list, which contains the name of all series.

```

4137 \newcommand{\@series}{-}
4138 %

```

The command `\newseries@series` creates a new series of the footnote.

```
\newseries@39 \newcommand{\newseries@}[1]{
4140 %
```

### XX.1 Test if series is still existing

```
4141 \xifinlist{#1}{\@series}{\led@warn@SeriesStillExist{#1}}%
4142 {%
4143 %
```

### XX.2 Init specific to reledpar

When calling `\newseries@` after having loaded `reledpar`, we need to load specific setting.

```
4144 \ifdefined\newseries@par%
4145 \newseries@par{#1}%
4146 \fi%
4147 %
```

### XX.3 For critical footnotes

Critical footnotes are those which start with letters. We look for the `\nocritical` option of `reledmac`.

```
4148 \unless\ifnocritical@
4149 %
```

#### XX.3.1 Options

```
4150 \newtoggle{Xlineflag@#1}
4151 \newtoggle{Xparindent@#1}
4152 \newtoggle{Xlemmadisablefontselection@#1}
4153 \csgdef{Xhangindent@#1}{Opt}%
4154 \csgdef{Xragged@#1}{}%
4155 \csgdef{Xhsizetwocol@#1}{0.45 \hsize}%
4156 \csgdef{Xhsizethreecol@#1}{.3 \hsize}%
4157 \csgdef{Xcolalign@#1}{\raggedright}%
4158 \csgdef{Xnotenumfont@#1}{\normalfont}%
4159 \csgdef{Xnotefontsize@#1}{\footnotesize}%
4160 \csgdef{Xbhooknote@#1}{}%
4161 \csgdef{Xbhookgroup@#1}{}%
4162
4163 \csgdef{Xboxlinenum@#1}{Opt}%
4164 \csgdef{Xboxlinenumalign@#1}{L}%
4165
4166 \csgdef{Xboxstartlinenum@#1}{Opt}%
```

```

4167 \csgdef{Xboxendlinenum@#1}{Opt}%
4168
4169 \csgdef{Xboxsymlinenum@#1}{Opt}%
4170 \newtoggle{Xnumberonlyfirstinline@#1}%
4171 \newtoggle{Xnumberonlyfirstintwoline@#1}%
4172 \csgdef{Xtwoline@#1}{}%
4173 \csgdef{Xmorethantwoline@#1}{}%
4174 \csgdef{Xsubline@#1}{\fullstop}%
4175 \newtoggle{Xtwolinebutnotmore@#1}%
4176 \newtoggle{Xtwolineonlyinsamepage@#1}%
4177 \newtoggle{Xonlypstart@#1}%
4178 \newtoggle{Xpstarteverytime@#1}%
4179 \newtoggle{Xpstart@#1}%
4180 \newtoggle{Xstanza@#1}%
4181 \csgdef{Xstanzaseparator@#1}{}%
4182 \csgdef{Xsymlinenum@#1}{}%
4183 \newtoggle{Xnonumber@#1}%
4184 \csgdef{Xbeforenumber@#1}{Opt}%
4185 \csgdef{Xtxtbeforenumber@#1}{}%
4186 \csgdef{Xafternumber@#1}{0.5em}%
4187 \newtoggle{Xnonbreakableafternumber@#1}%
4188 \csgdef{Xbeforesymlinenum@#1}{\csuse{Xbeforenumber@#1}}%
4189 \csgdef{Xaftersymlinenum@#1}{\csuse{Xafternumber@#1}}%
4190 \csgdef{Xinplaceofnumber@#1}{1em}%
4191 \global\cslet{Xlemmaseparator@#1}{\rbracket}%
4192 \csgdef{Xbeforelemmaseparator@#1}{0em}%
4193 \csgdef{Xafterlemmaseparator@#1}{0.5em}%
4194 \csgdef{Xinplaceofflemmaseparator@#1}{1em}%
4195 \csgdef{Xbeforenotes@#1}{1.2em \@plus .6em \@minus .6em}%
4196 \csgdef{Xafterrule@#1}{Opt}%
4197 \csgdef{Xtxtbeforenotes@#1}{%
4198 \csgdef{Xmaxhnotes@#1}{0.8\vsizex}%
4199 \newtoggle{Xnoteswidthliketwocolumns@#1}%
4200 \csgdef{Xparafootsep@#1}{}%
4201 \csgdef{Xafternote@#1}{1em plus .4em minus .4em}%
4202 \csgdef{Xlinerangeseparator@#1}{\endashchar}%
4203 %

```

### XX.3.2 Create inserts, needed to add notes in foot

As regards inserts, see chapter 15 of *The TeXbook* by D. Knuth.

```

4204 \expandafter\newinsert\csname #1footins\endcsname%
4205 \unless\ifnoledgroup%
4206 \expandafter\newinsert\csname mp#1footins\endcsname%
4207 \fi%
4208 %

```

### XX.3.3 Create commands for critical apparatus, \Afootnote, \Bfootnote etc.

Note the double # in command: it is because command it is made inside another command.

```

4209 \global\newbool{parapparatus@}{\expandafter\newcommand\expandafter
*}{\expandafter\newcommand}\csname #1footnote\endcsname[2][]{%
4210 \ifnum\@edtext@level>0%
4211 \begingroup%
4212 \newcommand{\content}{##2}%
4213 \ifnumberedpar@%
4214 \ifledRcol%
4215 \ifluatex%
4216 \footnotelang@lua[R]%
4217 \fi%
4218 \ifundefined{xpg@main@language}%if polyglossia
4219 {}%
4220 {\footnotelang@poly[R]}%
4221 \footnoteoptions@{R}{##1}{true}%
4222 \xright@appenditem{%
4223 \noexpand\Xnote@true%
4224 \noexpand\prepare@preXnotes{#1}%
4225 \noexpand\prepare@edindex@fornote{\l@d@nums}%
4226 \unexpanded{\def\sw@list@inedtext}{\expandafter\
unexpanded\expandafter{\sw@inthisedtext}}%The value of the \sw@inthisedtext
of current \edtext will be pushed to \sw@list@inedtext when the notes are
expanded.
4227 \noexpand\setcounter{stanzaR}{\the\c@stanzaR}%Save
stanzaR counter for footnote
4228 \noexpand\csuse{v#1footnote}{#1}%
4229 {\l@d@nums}{\expandonce\@tag}{\expandonce\content}}
%
4230 \noexpand\Xnote@false%
4231 }\to\inserts@listR
4232 \footnoteoptions@{R}{##1}{false}%
4233 \global\advance\insert@countR \@ne%
4234 \else%
4235 \ifluatex%
4236 \footnotelang@lua%
4237 \fi%
4238 \ifundefined{xpg@main@language}%if polyglossia
4239 {}%
4240 {\footnotelang@poly}%
4241 \footnoteoptions@{L}{##1}{true}%
4242 \xright@appenditem{%
4243 \noexpand\Xnote@true%
4244 \noexpand\prepare@preXnotes{#1}%
4245 \noexpand\prepare@edindex@fornote{\l@d@nums}%
4246 \unexpanded{\def\sw@list@inedtext}{\expandafter\
unexpanded\expandafter{\sw@inthisedtext}}%The value of the \sw@inthisedtext

```

```

of current edtext will be pushed to \sw@list@inedtext when the notes are
expanded.
4247         \ifl@dpairing%
4248             \noexpand\setcounter{stanzaL}{\the\c@stanzaL}%Save
stanzaR counter for footnote
4249         \fi%
4250         \noexpand\csuse{v#1footnote}{#1}%
4251         {\l@d@nums}{\expandonce\@tag}{\expandonce\content}}
%
4252         \noexpand\Xnote@false%
4253         }\to\inserts@list
4254         \global\advance\insert@count \@ne%
4255         \footnoteoptions@{L}{##1}{false}%
4256     \fi
4257 \else
4258     \csuse{v#1footnote}{#1}{\{0|0|0|0|0|0|0|0\}{##1}}%
4259 \fi%
4260 \endgroup%
4261 \else%
4262     \led@err@FootnoteWithoutEdtext%
4263 \fi%
4264 \ignorespaces%
4265 }
4266 %

```

We need to be able to modify reledmac's footnote macros and restore their

```

4267     \global\csletcs{#1@@footnote}{#1footnote}
4268 %

```

### XX.3.4 Set standard display

```

4269     \Xarrangement@normal{#1}%
4270 %

```

End of for critical footnotes.

```

4271     \fi
4272 %

```

## XX.4 For familiar footnotes

Familiar footnotes are those which end with letters. We look for the `nofamiliar` option of `reledmac`.

```

4273     \unless\ifnofamiliar@
4274 %

```

### XX.4.1 Options

```

4275 \newtoggle{parindentX@#1}
4276 \csgdef{hangindentX@#1}{0pt}%
4277 \csgdef{raggedX@#1}{}%
4278 \csgdef{hsizetwocolX@#1}{0.45 \hsize}%
4279 \csgdef{hsizethreecolX@#1}{.3 \hsize}%
4280 \csgdef{colalignX@#1}{\raggedright}%
4281 \csgdef{notenumfontX@#1}{\normalfont}%
4282 \csgdef{notefontsizeX@#1}{\footnotesize}%
4283 \csgdef{bhooknoteX@#1}{}%
4284 \csgdef{bhookgroupX@#1}{}%
4285 \csgdef{afterruleX@#1}{0pt}
4286 \csgdef{beforenotesX@#1}{1.2em \@plus .6em \@minus .6em}
4287 \csgdef{maxhnotesX@#1}{0.8\vsizex}%
4288 \newtoggle{noteswidthliketwocolumnsX@#1}%
4289 \csgdef{parafootsepX@#1}{}%
4290 \csgdef{afternoteX@#1}{1em plus.4em minus.4em}
4291 % End of for familiar footnotes.
4292 % \subsubsection{Create inserts, needed to add notes in foot}
4293 % As regards inserts, see chapter 15 of the TeXBook by D. Knuth.
4294 % \begin{macrocode}
4295 \expandafter\newinsert\csname footins#1\endcsname%
4296 \unless\ifnoledgroup%
4297 \expandafter\newinsert\csname mpfootins#1\endcsname%
4298 \fi%
4299 %

```

#### XX.4.2 Create tools for familiar footnotes (\footnoteX)

First, create the \footnoteX command. Note the double # in command: it is because a command is called inside another command.

```

4300 \global\expandafter\newcommand\csname footnote#1\endcsname[1]{%
4301 \begingroup%
4302 \prepare@prenotesX{#1}%
4303 \newcommand{\content}{##1}%
4304 %
4305 %

```

If we are preparing parallel typesetting, we cannot just increase the footnote counter. Read `reledpar`'s handbook about that (V.2.1 p. 44).

```

4306 \ifl@dpairing%
4307 \global\expandafter\advance\csname footnote#1@reading\endcsname by \@ne
4308 \ifcsdef{footnote#1@reading\the\csname footnote#1@reading\endcsname=typeset}%
4309 {\setcounter{footnote#1}{\csuse{footnote#1@reading\the\csname footnote#1@reading\endcsname=typeset}}}%
4310 {\setcounter{footnote#1}{\the\csname footnote#1@reading\endcsname}}}%
4311 \else%
4312 \stepcounter{footnote#1}%

```

```

4313         \fi%
4314 %

And now, the feature not depending of wether we are preparing parallel typesetting

4315         \protected@csxdef{@thefnmark#1}{\csuse{thefootnote#1}}%
4316         \nottoggle{nomk@}%Nomk is set to true when using \
footnoteXnomk with \parpackage
4317         {\csuse{@footnotemark#1}}%
4318         {}%
4319         \ifluatex%
4320         \xdef\footnote@luatextextdir{\the\textdir}%
4321         \xdef\footnote@luatexpardir{\the\pardir}%
4322         \fi%
4323         \csuse{vfootnote#1}{#1}{\expandonce\content}\m@mmf@prepare%
4324         \endgroup%
4325     }
4326 %

```

Then define the counters.

```

4327         \newcounter{footnote#1}
4328         \global\expandafter\renewcommand\csname thefootnote#1\endcsname{\
arabic{footnote#1}}
4329 %

```

Do not forget to initialize series

```

4330         \arrangementX@normal{#1}%
4331         \fi
4332 %

```

## XX.5 The endnotes

Endnotes are commands like `\Xendnote`, where `X` is a series letter. First, we check for the `noend` options.

```

4333         \unless\ifnoend@
4334 %

```

### XX.5.1 The auxiliary file

Endnotes of all varieties are saved up in a file, one by series, typically named `<jobname>.Xend`. `\l@d@end` is the output stream number for this file, and `\ifl@dend@X` is a flag that is true when the file is open.

```

\l@d@Xend
\ifl@dend@X
\l@dend@Xtrue
\l@dend@Xfalse
4335         \expandafter\newwrite\csname l@d@#1end\endcsname%
4336         \expandafter\newif\csname ifl@dend@#1\endcsname%
4337 %

```

### XX.5.2 The main macro

The `\Xendnote` macro functions to write one endnote to the `.Xend` file. We change `\newlinechar` so that in the file every space becomes the start of a new line; this generally ensures that a long note does not exceed restrictions on the length of lines in files.

```

4338
4339     \global\expandafter\newcommandx\csname #1endnote\endcsname[2][1,
usedefault]{%
4340         \bgroup%
4341         \newlinechar='40%
4342         \global\@noneed@Footnotetrue%
4343         \newcommand{\content}{##2}%
4344         \expandafter\immediate\expandafter\write\csname l@d@#1end\
endcsname{%
4345             \expandafter\string\csname #1end\endcsname%
4346             {\ifnumberedpar@l@d@nums\fi}%
4347             {\ifnumberedpar@expandonce\@tag\fi}%
4348             {\expandonce\content}%
4349             {\#1}%
4350             {\unexpanded{##1}}%
4351             {\ifledRcol R\else L\fi}
4352             \@percentchar%
4353         }%
4354         \egroup%
4355         \ignorespaces%
4356     }%
4357 %

```

`\Xendnote` commands called `\Xend` commands on to the endnote file; these are analogous to the various `footfmt` commands above, and they take the same arguments. When we process this file, we want to pick out the notes of one series and ignore all the rest. To do that, we equate the end command for the series we want to `\endprint`, and leave the rest equated to `\@gobblefive`, which just skips over its five arguments.

```

4358
4359     \global\cslet{#1end}{\@gobblefive}
4360 %

```

We need to store the number of times `\doendnotesbysection` is called for one series.

```

4361     \global\expandafter\newcount\csname #1end@bysection\endcsname%
4362 %

```

### XX.5.3 The options

```

4363     \csgdef{Xendtwolines@#1}{}%
4364     \csgdef{Xendmoreethantwolines@#1}{}%
4365     \newtoggle{Xendtwolinesbutnotmore@#1}{}%
4366     \newtoggle{Xendtwolinesonlyinsamepage@#1}{}%

```



```

4367 \newtoggle{Xendlemmadisablefontselection@#1}%
4368 \csgdef{Xendnotenumfont@#1}{\normalfont}%
4369 \csgdef{Xendnotefontsize@#1}{\footnotesize}%
4370 \csgdef{Xendbhooknote@#1}{}%
4371
4372 \csgdef{Xendsublinesep@#1}{\fullstop}%
4373
4374 \csgdef{Xendbeforenumber@#1}{Opt}%
4375 \csgdef{Xendafternumber@#1}{0.5em}%
4376
4377 \csgdef{Xendboxlinenum@#1}{Opt}%
4378 \csgdef{Xendboxlinenumalign@#1}{L}%
4379
4380 \csgdef{Xendboxstartlinenum@#1}{Opt}%
4381 \csgdef{Xendboxendlinenum@#1}{Opt}%
4382
4383 \csgdef{Xendlemmaseparator@#1}{}%
4384 \csgdef{Xendbeforelemmaseparator@#1}{0em}%
4385 \csgdef{Xendafterlemmaseparator@#1}{0.5em}%
4386 \csgdef{Xendinplaceoflemmaseparator@#1}{0.5em}%
4387
4388 \newtoggle{Xendparagraph@#1}%
4389 \csgdef{Xendafternote@#1}{1em plus.4em minus.4em}%
4390 \csgdef{Xendsep@#1}{}%
4391
4392 \csgdef{Xendinplaceofnumber@#1}{Opt}%
4393 \newtoggle{Xendnonumber@#1}%
4394
4395 \csgdef{Xendhangindent@#1}{Opt}%
4396 \newtoggle{Xendnumberonlyfirstinline@#1}%
4397 \newtoggle{Xendnumberonlyfirstintwolines@#1}%
4398
4399 \csgdef{Xendbeforesymmlinenum@#1}{\csuse{Xendbeforenumber@#1}}%
4400 \csgdef{Xendaftersymmlinenum@#1}{\csuse{Xendafternumber@#1}}%
4401 \csgdef{Xendsymmlinenum@#1}{}%
4402 \csgdef{Xendboxsymmlinenum@#1}{Opt}%
4403
4404 \csgdef{Xendbhooklinenumber@#1}{}%
4405 \csgdef{Xendehooklinenumber@#1}{}%
4406 \csgdef{Xendbhookinplaceofnumber@#1}{}%
4407 \csgdef{Xendehookinplaceofnumber@#1}{}%
4408
4409 \csgdef{Xendlinerangeseparator@#1}{\endashchar}%
4410
4411 \csgdef{Xendbeforepagenumber@#1}{p.}%
4412 \csgdef{Xendafterpagenumber@#1}{ )}%
4413 \csgdef{Xendlineprefixsingle@#1}{}%
4414 \csgdef{Xendlineprefixmore@#1}{}%
4415
4416 \newtoggle{Xendlineflag@#1}

```

```

4417 %
      End of endnotes declaration
4418 \fi%
4419 %
      Dump series in \@series
4420 \listxadd{\@series}{#1}
4421 }
4422 }% End of \newseries
4423 %

```

## XX.6 Init standards series (A,B,C,D,E)

```

4424 \expandafter\newseries\expandafter{\default@series}
4425 %

```

# XXI *Setting series display*

## XXI.1 *Change series order*

**\seriesatbegin** `\seriesatbegin{⟨s⟩}` changes the order of series, to put the series `⟨s⟩` at the beginning of the list. The series can be the result of a command.

```

4426 \newcommand{\seriesatbegin}[1]{%
4427   \StrDel{\@series}{#1}[\@series]%
4428   \edef\@new{}%
4429   \listxadd{\@new}{#1}%
4430   \listxadd{\@new}{\@series}%
4431   \xdef\@series{\@new}%
4432 }
4433 %

```

**\seriesatend** And `\seriesatend` moves the series to the end of the list.

```

4434 \newcommand{\seriesatend}[1]{%
4435   \StrDel{\@series}{#1}[\@series]%
4436   \edef\@new{}%
4437   \listxadd{\@new}{\@series}%
4438   \listxadd{\@new}{#1}%
4439   \xdef\@series{\@new}%
4440 }
4441 %

```

## XXI.2 *Test series order*

**\ifseriesbefore** `\ifseriesbefore{⟨seriesA⟩}{⟨seriesB⟩}{⟨true⟩}{⟨false⟩}` expands `⟨true⟩` if `⟨seriesA⟩` is printed before `⟨seriesB⟩`, expands `⟨false⟩` otherwise.

```

4442 \newcommand{\ifseriesbefore}[4]{%
4443   \StrPosition{\@series}{#1}[\@first]%
4444   \StrPosition{\@series}{#2}[\@second]%
4445   \ifnumgreater{\@second}{\@first}{#3}{#4}%
4446 }
4447 %

```

### XXI.2.1 Get the first series

In some specific case, we need to know the first series of the list of series.

```

\@getfirstseries@48 \newcommand{\@getfirstseries}{%
4449   \ifdefempty{\@series}%
4450   {\xdef\@firstseries{}}%
4451   {\StrChar{\@series}{1}[\@firstseries]}%
4452 }%
4453 %

```

## XXI.3 Series setting

### XXI.3.1 General way of working

The setting's command (like `\numberonlyfirstinline`), also called “hooks” can be divided in two categories: those which require a string values and those which require a boolean value. The first category includes those which require a length value, because we store the length's expression send by user and we evaluate it only in the commands which requires to know the setting. The second category require boolean value only when it is set to FALSE. Otherwise, we understand the insinuated value is TRUE.

For each “hook” command, we store the value in commands (first category) or a `etoolbox`'s toggle (second category) which names are in the form `\<hook>@<series>`. For example when calling `\twolines{<sq.>}`, we store `sq.` in commands `\twolines@A`, `\twolines@B`, `\twolines@C`...for each series defined for use with `reledmac`, or, if the [`<series>`] optional argument was send, for each series of this argument.

These values are tested in some specific places, scattered in all the code, depending of their effects. The default values are defined by the `\newseries@` command.

In order to prevent code duplication, we have created some generic commands. Some of them change the value of any hook send as argument. Some other, getting a hook name, generate the user level commands.

### XXI.3.2 Tools to set options

`\settoggle@series` `\settoggle@series{<series>}{<toggle>}{<value>}` is a generic command to switch toggles for some series. The arguments are:

- #1 (mandatory): the series for which the hooks should be set. If empty, all the series will be affected.

- #2 (mandatory): the name of the hook.
- #3 (mandatory): the new value of toggle (true or false).
- #4 (optional): if equal to `reload`, reload the footnote setting (call again `\Xarrangement` or `\arrangementX` or ... depending of the footnote display).
- #5 (optional): if not empty, and if #1 is empty, change the hook setting for pseudo-series, as `appref`.

```

4454 \newcommandx{\settoggle@series}[5][4,5,usedefault]{%
4455   \def\do##1{%
4456     \global\settoggle{#2@##1}{#3}%
4457     \ifstrequal{#4}{critical}{
4458       \csuse{Xarrangement@}\csuse{series@display##1}}{##1}%
4459     }{}
4460     \ifstrequal{#4}{familiar}{
4461       \csuse{arrangementX@}\csuse{series@displayX##1}}{##1}%
4462     }{}
4463   }%
4464   \ifstreempty{#1}{%
4465     \dolistloop{\@series}%
4466     \ifstreempty{#5}{}%
4467       \docsvlist{#5}%
4468     }
4469   }%
4470   {%
4471     \docsvlist{#1}%
4472   }%
4473 }
4474 %

```

`\setcommand@series` `\setcommand@series{<series>}{<command>}{<value>}` is a generic command to store hook's value into commands specific to some series. The arguments are:

- #1 (mandatory): the series for which the hooks should be set. If empty, all the series will be affected.
- #2 (mandatory): the name of the hook.
- #3 (mandatory): the new value of the hook/command.
- #4 (optional): if equal to `reload`, reload the footnote setting (call `\footnormal` or `\footparagraph` or ... depending of the footnote display).
- #5 (optional): if not empty, and if #1 is empty, change the hook setting for pseudo-series, as `appref`.

```

4475 \newcommandx{\setcommand@series}[5][4,5,usedefault]{%
4476   \def\do##1{
4477     \csgdef{#2@##1}{#3}
4478     \ifstrequal{#4}{critical}{%
4479       \csuse{Xarrangement@}\csuse{series@display##1}}{##1}%
4480     }{}
4481     \ifstrequal{#4}{familiar}{%
4482       \csuse{arrangementX@}\csuse{series@displayX##1}}{##1}%
4483     }{}%
4484   }%
4485   \ifstreempty{#1}{%
4486     \dolistloop{\@series}%
4487     \ifstreempty{#5}{}{%
4488       \docsvlist{#5}
4489     }
4490   }%
4491   {%
4492     \docsvlist{#1}%
4493   }%
4494 }%
4495 %

```

### XXI.3.3 Tools to generate options commands

**\newhookcommand@series** `\newhookcommand@series\command names` is a generic command to add new commands for hooks, like `\Xhsizetwocol`. The first argument is the name of the hook, the second a comma-separated list of pseudo-series where the hook can be used, like `appref` in the case of `\Xtwolines`. The second argument is also used to create commands named `\<hookname><pseudoseris>`, like `\Xtwolinesappref`.

```

4496 \newcommandx{\newhookcommand@series}[2][2,usedefault]{%
4497   \global\expandafter\newcommand\expandafter*\csname #1\endcsname[2][]{%
4498     \setcommand@series{##1}{#1}{##2}[] [#2]%
4499   }%
4500   \ifstreempty{#2}{}{%
4501     \def\do##1{%
4502       \global\expandafter\newcommand\expandafter*\csname #1##1\endcsname
4503       [1]{%
4504         \csuse{#1}[##1]{####1}%
4505       }%
4506     }%
4507     \docsvlist{#2}%
4508   }%
4509 }%

```

**\newhooktoggle@series** `\newhooktoggle@series\command names` is a generic command to add new commands for a new toggle hook, like `\Xnumberonlyfirstinline`. The second argu-

ment is also used to create commands named `\<hookname><pseudoserious>`, like `\Xtwolinesbutnotmoreappref`.

```

4510 \newcommandx{\newhooktoggle@series}[2][2,usedefault]{%
4511   \global\expandafter\newcommandx\expandafter*\csname #1\endcsname[2][1,2={
true},usedefault]{%
4512     \settoggle@series{##1}{#1}{##2}[][#2]%
4513   }%
4514   \ifstrempy{#2}{%
4515     \def\do##1{%
4516       \global\expandafter\newcommand\expandafter*\csname #1##1\endcsname{%
4517         \csuse{#1}[##1]%
4518       }%
4519     }%
4520     \docsvlist{#2}%
4521   }%
4522 }
4523 %

```

`\newhooktoggle@series@reload` `\newhookcommand@toggle@reload` does the same thing as `\newhooktoggle@series` but the commands created by this macro also reload the series arrangement, depending of type of notes

```

4524 \newcommand{\newhooktoggle@series@reload}[2]{%
4525   \global\expandafter\newcommandx\expandafter*\csname #1\endcsname[2][1,2={
true},usedefault]{%
4526     \settoggle@series{##1}{#1}{##2}[#2]%
4527   }%
4528 }%
4529 %

```

`\newhookcommand@series@reload` `\newhookcommand@series@reload` does the same thing as `\newhookcommand@series` but the commands created by this macro also reload the series' arrangement.

```

4530 \newcommand{\newhookcommand@series@reload}[2]{%
4531   \global\expandafter\newcommand\expandafter*\csname #1\endcsname[2][]{%
4532     \setcommand@series{##1}{#1}{##2}[#2]%
4533   }%
4534 }
4535 %

```

### XXI.3.4 Options for critical notes

Before generating the commands that are used to set the critical notes, such as `\Xnumberonlyfirstinline`, `\Xlemmaseparator` and the like, we check the `nocritical` option.

```

4536 \unless\ifnocritical@
4537   \newhooktoggle@series{Xparindent}
4538   \newhookcommand@series{Xhangindent}

```

```

4539 \newhookcommand@series{Xragged}
4540 \newhookcommand@series{Xhsizetwocol}
4541 \newhookcommand@series{Xhsizethreecol}
4542 \newhookcommand@series{Xcolalign}%
4543 \newhookcommand@series{Xnotenumfont}
4544 \newhookcommand@series{Xbhooknote}
4545 \newhookcommand@series@reload{Xbhookgroup}{critical}
4546 \newhookcommand@series{Xboxsymlinenum}%
4547 \newhookcommand@series{Xsymlinenum}
4548 \newhookcommand@series{Xbeforenumber}
4549 \newhookcommand@series{Xtxtbeforenumber}
4550 \newhookcommand@series{Xafternumber}
4551 \newhookcommand@series{Xbeforesymlinenum}
4552 \newhookcommand@series{Xaftersymlinenum}
4553 \newhookcommand@series{Xinplaceofnumber}
4554 \newhookcommand@series{Xlemmaseparator}
4555 \newhookcommand@series{Xbeforelemmaseparator}
4556 \newhookcommand@series{Xafterlemmaseparator}
4557 \newhookcommand@series{Xinplaceoflemmaseparator}
4558 \newhookcommand@series{Xtxtbeforenotes}
4559 \newhookcommand@series@reload{Xafterrule}{critical}
4560 \newhooktoggle@series{Xnumberonlyfirstinline}
4561 \newhooktoggle@series{Xnumberonlyfirstintwolines}
4562 \newhooktoggle@series{Xnonumber}
4563 \newhooktoggle@series{Xpstart}
4564 \newhooktoggle@series{Xpstarteverytime}%
4565
4566 \newhooktoggle@series{Xstanza}%
4567 \newhookcommand@series{Xstanzaseparator}%
4568
4569 \newhooktoggle@series{Xonlypstart}
4570 \newhooktoggle@series{Xnonbreakableafternumber}
4571 \newhooktoggle@series{Xlemmadisablefontselection}
4572 \newhookcommand@series@reload{Xmaxhnotes}{critical}
4573 \newhookcommand@series@reload{Xbeforenotes}{critical}
4574 \newhooktoggle@series@reload{Xnoteswidthliketwocolumns}{critical}%
4575 \newhookcommand@series@reload{Xnotefontsize}{critical}
4576
4577 \newhookcommand@series{Xboxlinenum}%
4578 \newhookcommand@series{Xboxlinenumalign}%
4579
4580 \newhookcommand@series{Xboxstartlinenum}%
4581 \newhookcommand@series{Xboxendlinenum}%
4582
4583 \newhookcommand@series{Xafternote}%
4584 \newhookcommand@series{Xparafootsep}
4585
4586
4587 \fi
4588 \newhooktoggle@series{Xlineflag}[appref,SEref]

```

```

4589 \newhookcommand@series{Xtwolines}[appref,Seref]
4590 \newhookcommand@series{Xmorethantwolines}[appref,Seref]
4591 \newhookcommand@series{Xsublinesep}[appref,Seref,side]
4592 \newhooktoggle@series{Xtwolinesbutnotmore}[appref,Seref]
4593 \newhooktoggle@series{Xtwolinesonlyinsamepage}[appref,Seref]
4594 \newhookcommand@series{Xlinerrangeseparator}[appref,Seref]
4595 %

```

### XXI.3.5 Options for familiar notes

Before generating the optional commands for familiar notes, we check the `\nofamiliar` option.

```

4596 \unless\ifnofamiliar@
4597   \newhooktoggle@series{parindentX}
4598   \newhookcommand@series{hangindentX}
4599   \newhookcommand@series{raggedX}
4600   \newhookcommand@series{hsizetwocolX}
4601   \newhookcommand@series{hsizethreecolX}
4602   \newhookcommand@series{colalignX}%
4603   \newhookcommand@series{notenumfontX}
4604   \newhookcommand@series{bhooknoteX}
4605   \newhookcommand@series@reload{bhookgroupX}{familiar}
4606   \newhookcommand@series@reload{beforenotesX}{familiar}
4607   \newhookcommand@series@reload{maxhnotesX}{familiar}
4608   \newhooktoggle@series@reload{noteswidthliketwocolumnsX}{familiar}%
4609   \newhookcommand@series@reload{afterruleX}{familiar}
4610   \newhookcommand@series@reload{notefontsizeX}{familiar}
4611   \newhookcommand@series{afternoteX}
4612   \newhookcommand@series{parafootsepX}
4613 \fi
4614 %

```

### XXI.3.6 Options for endnotes

Before generating the commands that are used to set the endnotes, such as `\Xnumberonlyfirstinline`, `\Xlemmaseparator+` and the like, we check the `noend` option.

```

4615 \unless\ifnoend@
4616   \newhookcommand@series{Xendnotenumfont}
4617   \newhookcommand@series{Xendbhooknote}
4618
4619   \newhookcommand@series{Xendboxlinenum}%
4620   \newhookcommand@series{Xendboxlinenumalign}%
4621
4622   \newhookcommand@series{Xendboxstartlinenum}%
4623   \newhookcommand@series{Xendboxendlinenum}%
4624
4625   \newhookcommand@series{Xendnotefontsize}

```



```

4626 \newhooktoggle@series{Xendlemmadisablefontselection}
4627 \newhookcommand@series{Xendlemmaseparator}
4628 \newhookcommand@series{Xendbeforelemmaseparator}
4629 \newhookcommand@series{Xendafterlemmaseparator}
4630 \newhookcommand@series{Xendinplaceoflemmaseparator}
4631
4632 \newhookcommand@series{Xendbeforenumber}%
4633 \newhookcommand@series{Xendafternumber}%
4634
4635 \newhooktoggle@series{Xendparagraph}
4636 \newhookcommand@series{Xendafternote}
4637 \newhookcommand@series{Xendsep}
4638
4639 \newhookcommand@series{Xendinplaceofnumber}%
4640 \newhooktoggle@series{Xendnonumber}%
4641
4642 \newhooktoggle@series{Xendnumberonlyfirstinline}%
4643 \newhooktoggle@series{Xendnumberonlyfirstintwolines}%
4644
4645 \newhookcommand@series{Xendsymmlinenumber}%
4646 \newhookcommand@series{Xendbeforemsymmlinenumber}%
4647 \newhookcommand@series{Xendaftersymmlinenumber}%
4648 \newhookcommand@series{Xendboxsymmlinenumber}%
4649
4650 \newhookcommand@series{Xendbhooklinenumber}%
4651 \newhookcommand@series{Xendahooklinenumber}%
4652 \newhookcommand@series{Xendbhookinplaceofnumber}%
4653 \newhookcommand@series{Xendahookinplaceofnumber}%
4654
4655 \newhookcommand@series{Xendhangindent}%
4656
4657
4658 \fi
4659 \newhooktoggle@series{Xendlineflag}[apprefwithpage,SErefwithpage]
4660 \newhookcommand@series{Xendtwolines}[apprefwithpage,SErefwithpage]
4661 \newhookcommand@series{Xendmorethantwolines}[apprefwithpage,SErefwithpage]
4662 \newhooktoggle@series{Xendtwolinesbutnotmore}[apprefwithpage,SErefwithpage]
4663 \newhooktoggle@series{Xendtwolinesonlyinsamepage}[apprefwithpage,
SErefwithpage]
4664 \newhookcommand@series{Xendlinerangeseparator}[apprefwithpage,SErefwithpage
]
4665 \newhookcommand@series{Xendbeforepagenumber}[apprefwithpage,SErefwithpage,
SErefonlypage]
4666 \newhookcommand@series{Xendafterpagenumber}[apprefwithpage,SErefwithpage,
SErefonlypage]
4667 \newhookcommand@series{Xendlineprefixsingle}[apprefwithpage,SErefwithpage]
4668 \newhookcommand@series{Xendlineprefixmore}[apprefwithpage,SErefwithpage]
4669 \newhookcommand@series{Xendsublinesep}[apprefwithpage,SErefwithpage]
4670
4671 %

```

## XXI.4 Hooks for a particular footnote

`\newhooktoggle@specific` `\newhooktoggle@specific` is a generic command to create boolean hook specific to a note.

```

4672 \newcommand{\newhooktoggle@specific}[1]{%
4673   \newtoggle{#1}%
4674   \define@key[mac]{truefootnoteoption}{#1}[]{\global\settogtoggle{#1@}{true}}%
When enabling footnote option
4675   \define@key[mac]{falsefootnoteoption}{#1}[]{\global\settogtoggle{#1@}{false}}
4676 }
4677 %

```

`\newhookarg@specific` `\newhookarg@specific` is a generic command to create argumen hook specific to a note.

```

4678 \newcommand{\newhookarg@specific}[1]{%
4679   \define@key[mac]{truefootnoteoption}{#1}{\global\def\linrangesep@{##1}}%
When enabling footnote option
4680   \define@key[mac]{falsefootnoteoption}{#1}{\global\undef\linrangesep@}%
When
4681 }
4682 %

```

And now, we define some hooks specific to a note.

```

4683 \newhooktoggle@specific{fulllines}%
4684 \newhooktoggle@specific{nonum}
4685 \newhooktoggle@specific{nosep}
4686 \newhookarg@specific{linrangesep}
4687 %

```

`linrangesep@` `\linrangesep@` is defined by the option `linrangesep` of critical notes to change temporarily the line range separator for a specific line. As we have to define it before typesetting the line and undefine it after, we use the family of `xkeyval` package's key.

```

4688 %

```

`\nomk@` `\nomk@` toggle is used by `reledpar` to remove the footnote mark in the text when using `\footnoteXmk`. Read `reledpar` handbook.

```

4689 \newtoggle{nomk@}%
4690 %

```

## XXI.5 Alias

`\Xnolemmaseparator` `\Xnolemmaseparator[⟨series⟩]` is just an alias for `\Xlemmaseparator[⟨series⟩]{}`.

```

4691 \newcommandx*{\Xnolemmaseparator}[1][1]{\Xlemmaseparator{#1}{}}
4692 %

```

## XXII Output routine

Now we begin the output routine and associated things.

### XXII.0.1 Page number management

`\pageno` `\advancepageno` `\pageno` is a page number, starting at 1, and `\advancepageno` increments the number.

```

4693 \countdef\pageno=0 \pageno=1
4694 \newcommand*{\advancepageno}{\ifnum\pageno<\z@ \global\advance\pageno\m@ne
4695 \else\global\advance\pageno\@ne\fi}
4696
4697 %

```

### XXII.0.2 Extra footnotes output

With luck we might only have to change `\@makecol` and `\@reinserts` of the  $\TeX$ 's kernel. Since `reledmac`, we use `etoolbox`'s patching commands instead of overriding. It should provides better compatibility with other package which modify these commands

`\doextrafeet` `\doextrafeet` is the code extending `\@makecol` to cater for the extra `reledmac` feet. We have two categories of extra footnotes. By default, we order the footnote inserts so that the regular footnotes of  $\TeX$  are first, then familiar familiar footnotes and finally the critical footnotes.

```

4698 \newcommand*{\l@ddoextrafeet}{%
4699 \IfStrEq{familiar-critical}{\@fnpos}
4700 {\do@feetX\Xdo@feet}%
4701 {%
4702 \IfStrEq{critical-familiar}{\@fnpos}%
4703 {\Xdo@feet\do@feetX}%
4704 {\do@feetX\Xdo@feet}%
4705 }%
4706 }%
4707
4708 %

```

`\Xdo@feet` `\Xdo@feet` is the code extending `\@makecol` to cater for the extra critical feet.

```

4709 \newcommand*{\Xdo@feet}{%
4710 \setbox\@outputbox \vbox{%
4711 \unvbox\@outputbox
4712 \@opXfeet}}
4713 %

```

`\@opXfeet` The extra critical feet to be added to the output. The normal way to add one series,  
`\print@Xnotes` `\print@Xnotes`, is replaced by `reledpar` when using `\Pages`.

```

4714 \newcommand\print@Xnotes[1]{%
4715   \csuse{#1footstart}{#1}%
4716   \csuse{#1footgroup}{#1}%
4717 }%
4718 %

```

We print all series of notes by looping on them. We check before printing them that they are not voided.

```

4719 \newcommand*\@opXfeet{%
4720   \unless\ifnocritical@%
4721     \gdef\firstXseries@{%
4722       \def\do##1{%
4723         \ifvoid\csuse{##1footins}\else%
4724           \global\skip\csuse{##1footins}=\csuse{Xbeforenotes@##1}%
4725           \global\advance\skip\csuse{##1footins} by\csuse{Xafterrule@##1}%
4726           \print@Xnotes{##1}%
4727         \fi%
4728       }%
4729     \dolistloop{\@series}%
4730   \fi%
4731 }%
4732 %

```

**\l@ddodoreintrafeet** \l@ddodoreintrafeet is the code for catering for the extra footnotes within \@reinserts. We use the same category and ordering as in \l@ddoxtrafeet.

```

4733 \newcommand*\l@ddodoreintrafeet{%
4734   \IfStrEq{familiar-critical}{\@fnpos}
4735   {\@doreinfeetX\X@doreinfeet}%
4736   {%
4737     \IfStrEq{critical-familiar}{\@fnpos}%
4738     {\X@doreinfeet\@doreinfeetX}%
4739     {\@doreinfeetX\X@doreinfeet}%
4740   }%
4741 }
4742
4743 %

```

**\X@doreinfeet** \X@doreinfeet is the code for catering for the extra critical footnotes within \@reinserts.

```

4744 \newcommand*\X@doreinfeet{%
4745   \unless\ifnocritical@%
4746     \def\do##1{%
4747       \ifvoid\csuse{##1footins}\else%
4748         \insert\csuse{##1footins}{\unvbox\csuse{##1footins}}%
4749       \fi%
4750     \dolistloop{\@series}
4751   \fi%
4752 }
4753

```

```
4754 %
```

`\print@notesX` We have to add all the new kinds of familiar footnotes to the output routine. The normal way to add one series. `\print@Xnotes` is replaced by `reledpar` when using `\Pages`.

`\do@feetX`

```
\@doreinfeetX
4755 \newcommand\print@notesX[1]{%
4756   \csuse{footstart#1}{#1}%
4757   \csuse{footgroup#1}{#1}%
4758 }%
4759 %
```

We print all the series of notes by looping on them. We check before printing them that they are not voided.

```
4760 \newcommand*\do@feetX{%
4761   \unless\ifnofamiliar%
4762   \gdef\firstseriesX@{%
4763     \setbox\@outputbox \vbox{%
4764       \unvbox\@outputbox%
4765       \def\do##1{%
4766         \ifvoid\csuse{footins##1}\else%
4767           \global\skip\csuse{footins##1}=\csuse{beforenotesX@##1}%
4768           \global\advance\skip\csuse{footins##1} by\csuse{afterterruleX@##1}%
4769           \print@notesX{##1}%
4770         \fi%
4771       }%
4772       \dolistloop{\@series}}%
4773   \fi%
4774 }%
4775
4776 \newcommand{\@doreinfeetX}{%
4777   \unless\ifnofamiliar%
4778   \def\do##1{%
4779     \ifvoid\csuse{footins##1}\else
4780     \insert%
4781       \csuse{footins##1}
4782       {\unvbox\csuse{footins##1}}%
4783     \fi%
4784   }%
4785   \dolistloop{\@series}%
4786   \fi%
4787 }%
4788
4789 %
```

### XXII.0.3 Standard output's commands patching

The memoir class does not use the 'standard' versions of `\@makecol` and `\@reinserts`, due to its sidebar insert. We had better add that code if memoir is used. (It can be

awkward dealing with `\if` code within `\if` code, so don't use `\ifl@dmemoir` here.)

```

4790 \ifclassloaded{memoir}{%
4791 %

memoir is loaded so we use memoir's built in hooks.

4792 \g@addto@macro{\m@mdoextrafeet}{\l@ddoxtrafeet}%
4793 \g@addto@macro{\m@mdodoreinextrafeet}{\l@ddodoreinxtrafeet}%
4794 }{%
4795 %

memoir has not been loaded, so patch \@makecol and \@reinserts.

4796 \@ifpackageloaded{fancyhdr}{%
4797   \patchcmd%
4798     {\latex@makecol}%
4799     {\xdef\@freelist{\@freelist\@midlist}}}%
4800     {\xdef\@freelist{\@freelist\@midlist}\l@ddoxtrafeet}%
4801     {}%
4802     {\led@error@fail@patch@@@makecol}%
4803   }{%
4804     \patchcmd%
4805       {\@makecol}%
4806       {\xdef\@freelist{\@freelist\@midlist}}}%
4807       {\xdef\@freelist{\@freelist\@midlist}\l@ddoxtrafeet}%
4808       {}%
4809       {\led@error@fail@patch@@@makecol}%
4810     }%
4811
4812   \patchcmd%
4813     {\@reinserts}%
4814     {\ifvbox}%
4815     {\l@ddodoreinxtrafeet\ifvbox}%
4816     {}%
4817     {\led@error@fail@patch@@@reinserts}%
4818   }
4819
4820 %

```

It turns out that `\@doclearpage` also needs modifying.

`\if@led@nofoot` We have to check if there are any leftover feet.

```

4821 \newif\if@led@nofoot
4822
4823 %

4824 \@ifclassloaded{memoir}{%
4825 %

```

If the memoir class is loaded we hook into its modified `\@doclearpage`.

```

\@mem@extranofeet 26 \g@addto@macro{\@mem@extranofeet}{%%
4827 \def\do#1{%
4828 \unless\ifnocritical@%
4829 \ifvoid\csuse{#1footins}\else\@mem@nofootfalse\fi%
4830 \fi%
4831 \unless\ifnofamiliar@%
4832 \ifvoid\csuse{footins#1}\else\@mem@nofootfalse\fi%
4833 \fi%
4834 }
4835 \dolistloop{\@series}%
4836 }%
4837 }{%
4838 %

```

As memoir is not loaded we have patch \@doclearpage.

```

\@led@testifnofoot 39 \newcommand*{\@led@testifnofoot}{%
\@doclearpage 40 \@led@nofoottrue%
4841 \ifvoid\footins\else%
4842 \@led@nofootfalse%
4843 \fi%
4844 \def\do##1{%
4845 \unless\ifnocritical@%
4846 \ifvoid\csuse{##1footins}\else%
4847 \@led@nofootfalse%
4848 \fi%
4849 \fi%
4850 \unless\ifnofamiliar@%
4851 \ifvoid\csuse{footins##1}\else%
4852 \@led@nofootfalse%
4853 \fi%
4854 \fi%
4855 }%
4856 \dolistloop{\@series}%
4857 }%
4858
4859 \pretocmd%
4860 {\@doclearpage}%
4861 {\@led@testifnofoot}%
4862 {}%
4863 {\led@error@fail@patch@@doclearpage}%
4864
4865 \patchcmd%
4866 {\@doclearpage}%
4867 {\ifvoid\footins}%
4868 {\if@led@nofoot}%
4869 {}%
4870 {\led@error@fail@patch@@doclearpage}%
4871

```

```

4872 }
4873
4874 %

```

## XXIII Cross referencing

You can mark a place in the text using a command of the form `\edlabel{<foo>}`, and later refer to it using the label `<foo>` by typing `\edpageref{<foo>}`, or `\lineref{<foo>}` or `\sublineref{<foo>}` or `\pstartref`. These reference commands will produce, respectively, the page, line sub-line and pstart on which the `\edlabel{<foo>}` command occurred.

The reference macros warn you if a reference is made to an undefined label. If `{<foo>}` has been used as a label before, the `\edlabel{<foo>}` command will issue a complaint; subsequent `\edpageref` and `\edlineref` commands will refer to the latest occurrence of `\edlabel{<foo>}`.

**\labelref@list** Set up a new list, `\labelref@list`, to hold the page, line and sub-line numbers for each label.

```

4875 \list@create{\labelref@list}
4876 %

```

**\zz@@@** A convenience macro to zero two labeling counters in one go.

```

4877 \newcommand*{\zz@@@}{000|000} % set two counters to zero in one go
4878
4879 %

```

**\edlabel** The `\edlabel` command first writes a `\@lab` macro to the `\linenum@out` file. It then checks to see that the `\labelref@list` actually has something in it (if not, it creates a dummy entry), and pops the next value for the current label, storing it in `\label@refs`. Finally it defines the label to be `\empty` so that any future check will turn up the fact that it has been used.<sup>33</sup>

This version of the original `edmac \label` uses `\@bsphack` and `\@esphack` to eliminate extra space problems and also use the  $\TeX$  write methods for the `.aux` file.

Jesse Billett<sup>34</sup> found that the original code could be off by several pages. This version, hopefully cures that, and also allows for non-arabic page numbering.

```

4880 \newcommand*{\edlabel}[1]{%
4881   \ifl@dpairing\ifautopar%
4882     \strut%
4883     \fi\fi%
4884     \@bsphack%
4885     \ifboolexpr{bool{ledRcol} or bool{ledRcol@}}{%

```

<sup>33</sup>The remaining macros in this section were kindly revised by Wayne Sullivan, who substantially improved their efficiency and flexibility.

<sup>34</sup>(jdb43@cam.ac.uk) via the ctt thread ‘ledmac cross referencing’, 25 August 2003.



```

4886 \ifXnote@%
4887 \protected@write\@auxout{%
4888   {\string\l@dmake@labelsR\space\thepage|\l@dparsestartline|\
l@dparsestartsub|\the\c@pstartR|{#1}}}%
4889 \ifdef{\hypertarget}{\Hy@raisedlink{\hypertarget{#1}{}}}{}%
4890 \else%
4891 \write\linenum@outR{\string\@lab}%
4892 \ifx\labelref@listR\empty%
4893 \xdef\label@refs{\zz@@@}%
4894 \else%
4895 \gl@p\labelref@listR\to\label@refs%
4896 \fi%
4897 \ifvmode%
4898 \advancelabel@refs%
4899 \fi%
4900 %

```

Use code from the kernel `\label` command to write the correct page number. Also define an `hypertarget` if `hyperref` package is loaded.

```

4901 \protected@write\@auxout{%
4902   {\string\l@dmake@labelsR\space\thepage|\label@refs|\the\c@pstartR
|{#1}}}%
4903 \ifdef{\hypertarget}{\Hy@raisedlink{\hypertarget{#1}{}}}{}%
4904 \fi%
4905 }{%
4906 \ifXnote@%
4907 \protected@write\@auxout{%
4908   {\string\l@dmake@labelsR\space\thepage|\l@dparsestartline|\
l@dparsestartsub|\the\c@pstartR|{#1}}}%
4909 \ifdef{\hypertarget}{\Hy@raisedlink{\hypertarget{#1}{}}}{}%
4910 \else%
4911 \write\linenum@out{\string\@lab}%
4912 \ifx\labelref@list\empty%
4913 \xdef\label@refs{\zz@@@}%
4914 \else%
4915 \gl@p\labelref@list\to\label@refs%
4916 \fi%
4917 \ifvmode%
4918 \advancelabel@refs%
4919 \fi%
4920 \protected@write\@auxout{%
4921   {\string\l@dmake@labelsR\space\thepage|\label@refs|\the\c@pstart
|{#1}}}%
4922 \ifdef{\hypertarget}{\Hy@raisedlink{\hypertarget{#1}{}}}{}%
4923 \fi%
4924 }%
4925 \@esphack}%
4926
4927 %

```

`\advancelabel@refs` In cases where `\edlabel` is the first element in a paragraph, we have a problem with  
`\labelrefsparseline` line counts, because line counts change only at the first horizontal box of the paragraph.  
`\labelrefsparsesubline` Hence, we need to test `\edlabel` if it occurs at the start of a paragraph. To do so, we  
use `\ifvmode`. If the test is true, we must advance by one unit the amount of text we  
write into the `.aux` file. We do so using `\advancelabel@refs` command.

```

4928 \newcounter{line}%
4929 \newcounter{subline}%
4930 \newcommand{\advancelabel@refs}{%
4931     \setcounter{line}{\expandafter\labelrefsparseline\label@refs}%
4932     \stepcounter{line}%
4933     \ifsublines@%
4934         \setcounter{subline}{\expandafter\labelrefsparsesubline\label@refs}
4935     %
4936     \stepcounter{subline}{1}%
4937     \def\label@refs{\theline|\thesubline}%
4938     \else%
4939     \def\label@refs{\theline|0}%
4940     \fi%
4941 }
4942 \def\labelrefsparseline#1|#2{#1}
4943 \def\labelrefsparsesubline#1|#2{#2}
4944 %

```

`\l@dmake@labels` The `\l@dmake@labels` macro gets executed when the labels file is read. For each label it defines a macro, whose name is made up partly from the label you supplied, that contains the page, line and sub-line numbers. But first it checks to see whether the label has already been used (and complains if it has).

The initial use of `\newcommand` is to catch if `\l@dmake@labels` has been previously defined (by a class or package).

#1 page number, #2 line number, #3 sub-line number, #4 pstart number, #5 label.

```

4944 \newcommand*{\l@dmake@labels}{%
4945 \def\l@dmake@labels#1|#2|#3|#4|#5{%
4946     \expandafter\ifx\csname the@label#5\endcsname \relax\else
4947     \led@warn@DuplicateLabel{#5}%
4948     \fi
4949     \expandafter\gdef\csname the@label#5\endcsname{#1|#2|#3|#4|\relax}%
4950     \ignorespaces}
4951 %
4952 %

```

TeX reads the aux file at both the beginning and end of the document, so we have to switch off duplicate label checking after the first time the file is read.

```

4953 \AtBeginDocument{%
4954     \def\l@dmake@labels#1|#2|#3|#4|#5{%
4955     }
4956 %
4957 %

```

**\@lab** The \@lab command, which appears in the \linenum@out file, appends the current values of page, line and sub-line to the \labelref@list. These values are defined by the earlier \@page, \@nl, and the \sub@on and \sub@off commands appearing in the \linenum@out file.

LaTeX uses the page counter for page numbers. However, it appears that this is not the right place to grab the page number. That task is now done in the \edlabel macro. This version of \@lab appends just the current line and sub-line numbers to \labelref@list.

```

4958
4959 \newcommand*{\@lab}{%
4960   \ifledRcol
4961     \xright@appenditem{\linenumr@p{\line@numR}}|{%
4962       \ifsublines@ \sublinenumr@p{\subline@numR}\else 0\fi}%
4963     \to\labelref@listR
4964   \else
4965     \xright@appenditem{\linenumr@p{\line@num}}|{%
4966       \ifsublines@ \sublinenumr@p{\subline@num}\else 0\fi}%
4967     \to\labelref@list
4968   \fi}
4969 %

```

**\applabel** \applabel, if called in \edtext will insert automatically both a start and an end label for the current edtext lines.

```

4970 \newcommand*{\applabel}[1]{%
4971   \ifnum\@edtext@level>0%
4972   %

```

Label should not be already defined.

```

4973   \ifcsundef{the@label#1}{%
4974     \csdef{the@label#1}{applabel}%
4975   }%
4976   {%
4977     \led@warn@DuplicateLabel{#1 (applabel)}%
4978   }%
4979 %

```

Parse the \edtext line numbers.

```

4980   \expandafter\l@dp@rsefootspec\l@d@nums|{%
4981   %

```

Use the LaTeX standard hack for label.

```

4982   \@bsphack%
4983   %

```

And now, write the data in the auxiliary file.

```

4984   \ifledRcol%
4985   \protected@write\@auxout{}%

```

```

4986      {\string\l@dmake@labelsR\space\l@dparsedstartpage|\
l@dparsedstartline|\l@dparsedstartsub|\the\c@pstartR|\{#1:start\}}}%
4987      \ifdef{\hypertarget}{\Hy@raisedlink{\hypertarget{#1:start}{}}}{}%
4988      \protected@write\@auxout{}%
4989      {\string\l@dmake@labelsR\space\l@dparsedendpage|\l@dparsedendline
|\l@dparsedendsub|\the\c@pstartR|\{#1:end\}}}%
4990      \else%
4991      \protected@write\@auxout{}%
4992      {\string\l@dmake@labelsR\space\l@dparsedstartpage|\
l@dparsedstartline|\l@dparsedstartsub|\the\c@pstart|\{#1:start\}}}%
4993      \ifdef{\hypertarget}{\Hy@raisedlink{\hypertarget{#1:start}{}}}{}%
4994      \protected@write\@auxout{}%
4995      {\string\l@dmake@labelsR\space\l@dparsedendpage|\l@dparsedendline
|\l@dparsedendsub|\the\c@pstart|\{#1:end\}}}%
4996      \fi%
4997 %

```

Use the  $\TeX$  standard hack for label.

```

4998      \@esphack%
4999 %

```

Warning if `\applabel` is called outside of `\edtext`.

```

5000      \else%
5001      \led@warn@AppLabelOutEdtext{#1}%
5002      \fi%
5003 %

```

End of `\applabel`

```

5004 }%
5005 %

```

`\edlabels` `\edlabelS` and `\edlabelE` are just used to mark the beginning and the end of a passage.

```

\edlabelE
\edlabelSE
5006 \newcommand{\edlabelS}[1]{%
5007   \edlabel{#1:start}%
5008 }
5009 \newcommand{\edlabelE}[1]{%
5010   \edlabel{#1:end}%
5011 }
5012 \newcommand{\edlabelSE}[1]{%
5013   \edlabelS{#1}%
5014   \edlabelE{#1}%
5015 }
5016 %

```

`\wrap@edcrossref` `\wrap@edcrossref` is called around all `reledmac` crossref commands, except those which start with `x`. It adds the hyperlink.

```

5017 \newrobustcmd{\wrap@edcrossref}[2]{%
5018   \ifdef{\hyperlink}%
5019     {\hyperlink{#1}{#2}}%
5020     {#2}%
5021 }
5022 %

```

**\edpageref** If the specified label exists, \edpageref gives its page number.

**\xpageref** For this reference command, as for the other two, a special version with prefix x is provided for use in places where the command is to be scanned as a number, as in \linenum. These special versions have two limitations: they do not print error messages if the reference is unknown, and they can't appear as the first label or reference command in the file; you must ensure that a \edlabel or a normal reference command appears first, or these x-commands will always return zeros.

TeX already defines a \pageref, so changing the name to \edpageref.

```

5023 \newcommand*\edpageref[1]{\l@dref@undefined{#1}\wrap@edcrossref{#1}{\l@
5024   dgetref@num{1}{#1}}}
5025 \newcommand*\xpageref[1]{\l@dgetref@num{1}{#1}}
5026 %

```

**\edlineref** If the specified label exists, \lineref gives its line number.

**\xlineref**

```

5027 \newcommand*\edlineref[1]{\l@dref@undefined{#1}\wrap@edcrossref{#1}{\l@
5028   dgetref@num{2}{#1}\xflagref{#1}}}%
5029 \newcommand*\xlineref[1]{\l@dgetref@num{2}{#1}}%
5030 %

```

**\sublineref** If the specified label exists, \sublineref gives its sub-line number.

**\xsublineref**

```

5031 \newcommand*\sublineref[1]{\l@dref@undefined{#1}\wrap@edcrossref{#1}{\l@
5032   dgetref@num{3}{#1}}}
5033 \newcommand*\xsublineref[1]{\l@dgetref@num{3}{#1}}
5034 %

```

**\pstartref** If the specified label exists, \pstartref gives its pstart number.

**\xpstartref**

```

5035 \newcommand*\pstartref[1]{\l@dref@undefined{#1}\wrap@edcrossref{#1}{\l@
5036   dgetref@num{4}{#1}}}
5037 \newcommand*\xpstartref[1]{\l@dgetref@num{4}{#1}}
5038 %

```

**\xflagref** \xflagref finds the side flag of any ref defined with \edlabel.

```

5039 \newcommand*\xflagref[1]{\l@dgetref@num{5}{#1}}
5040 %

```

The next three macros are used by the referencing commands above, and do the job of extracting the right numbers from the label macro that contains the page, line, and sub-line number.

**\l@dref@undefined** The `\l@dref@undefined` macro is called when you refer to a label with the normal referencing macros. Its argument is a label, and it just checks that the label has been defined.

```

5041 \newcommand*\l@dref@undefined}[1]{%
5042   \expandafter\ifx\csname the@label#1\endcsname\relax
5043     \led@warn@RefUndefined{#1}%
5044   \fi}
5045
5046 %

```

**\l@dgetref@num** Next, `\l@dgetref@num` fetches the number we want. It has two arguments: the first is simply a digit, specifying whether to fetch a page (1), line (2), sub-line (3), (4) pstart number or (5) side flag. (This switching is done by calling `\l@dlabel@parse`.) The second argument is the label-macro, which because of the `\@lab` macro above is defined to be a string of the type 123|456|789.

```

5047 \newcommand*\l@dgetref@num}[2]{%
5048   \expandafter
5049   \ifx\csname the@label#2\endcsname \relax
5050     000%
5051   \else
5052     \expandafter\expandafter\expandafter
5053     \l@dlabel@parse\csname the@label#2\endcsname| #1%
5054   \fi}
5055
5056 %

```

**\l@dlabel@parse** Notice that we slipped another `|` delimiter into the penultimate line of `\l@dgetref@num`, to keep the ‘switch-number’ separate from the reference numbers. This `|` is used as another parameter delimiter by `\l@dlabel@parse`, which extracts the appropriate number from its first arguments. The `|`-delimited arguments consist of the expanded label-macro (three reference numbers), followed by the switch-number (1, 2, 3 or 4) which defines which of the earlier five numbers to pick out. (It was earlier given as the first argument of `\l@dgetref@num`.)

```

5057 \newcommand*\l@dlabel@parse}{%
5058 \def\l@dlabel@parse#1|#2|#3|#4|#5|#6{%
5059   \ifcase #6%
5060     \or #1%
5061     \or #2%
5062     \or #3%
5063     \or #4%
5064     \or #5%
5065   \fi}
5066 %

```

`\xxref` The `\xxref` command takes two arguments, both of which are labels, e.g., `\xxref{mouse}{elephant}`. It first does some checking to make sure that the labels do exist (if one does not, those numbers are set to zero). Then it calls `\linenum` and sets the beginning page, line, and sub-line numbers to those of the place where `\label{mouse}` was placed, and the ending numbers to those at `{elephant}`. The point of this is to be able to manufacture footnote line references to passages which cannot be specified in the normal way as the first argument to `\edtext` for one reason or another. Using `\xxref` in the second argument of `\edtext` lets you set things up at least semi-automatically.

```

5067 \newcommand*{\xxref}[2]{%
5068   {%
5069     \expandafter\ifx\csname the@label#1\endcsname \relax%
5070     \expandafter\let\csname the@@label#1\endcsname\zz@@@%
5071     \else%
5072       \expandafter\def\csname the@@label#1\endcsname{\l@dgetref@num
{1}{#1}|\l@dgetref@num{2}{#1}|\l@dgetref@num{3}{#1}}%
5073       \fi%
5074       \expandafter\ifx\csname the@label#2\endcsname \relax%
5075       \expandafter\let\csname the@@label#2\endcsname\zz@@@%
5076       \else%
5077       \expandafter\def\csname the@@label#2\endcsname{\l@dgetref@num
{1}{#2}|\l@dgetref@num{2}{#2}|\l@dgetref@num{3}{#2}}%
5078       \fi%
5079       \letcs{\@tempa}{the@@label#1}%
5080       \letcs{\@tempb}{the@@label#2}%
5081       \linenum{\@tempa|%
5082       \@tempb}}}%
5083
5084 %

```

`\appref` `\appref`, `\Seref`, `\apprefwithpage`, `\Serefwithpage` and `\SEonlypage` print cross-ref to some start / end lines defined by specific commands. It prints the lines as they should be printed in the apparatus (critical notes for not suffixed versions, endnotes for suffixed versions).

`\Serefwithpage` Here we define hooks similar to some those related to critical footnotes or endnotes. So, first declare the default value of the hooks for the pseudo-series. Also declare the internal toggle which are switch by `reledmac`.

```

5085 \def\Xtwolines@appref{%
5086 \def\Xtwolines@Seref{%
5087
5088 \def\Xmorethantwolines@appref{%
5089 \def\Xmorethantwolines@Seref{%
5090
5091 \def\Xlinerangeseparator@appref{\endashchar}%
5092 \def\Xlinerangeseparator@Seref{\endashchar}%
5093
5094 \def\Xsublinesep@appref{\fullstop}%
5095 \def\Xsublinesep@Seref{\fullstop}%

```

```

5096 \newtoggle{Xtwolinesbutnotmore@appref}%
5097 \newtoggle{Xtwolinesbutnotmore@SEref}%
5098
5099
5100 \newtoggle{Xtwolinesonlyinsamepage@appref}%
5101
5102 \newtoggle{Xtwolinesonlyinsamepage@SEref}%
5103
5104 \newtoggle{Xlineflag@appref}%
5105 \toggletrue{Xlineflag@appref}%Here exception
5106 \newtoggle{Xlineflag@SEref}%
5107 \toggletrue{Xlineflag@SEref}%%Here exception
5108
5109 \def\Xendtwolines@apprefwithpage{}%
5110 \def\Xendtwolines@SErefwithpage{}%
5111
5112 \def\Xendmorethantwolines@apprefwithpage{}%
5113 \def\Xendmorethantwolines@SErefwithpage{}%
5114
5115 \def\Xendlinerangeseparator@apprefwithpage{\endashchar}
5116 \def\Xendlinerangeseparator@SErefwithpage{\endashchar}
5117
5118 \def\Xendbeforepagenumber@apprefwithpage{p.}%
5119 \def\Xendbeforepagenumber@SErefwithpage{p.}%
5120 \def\Xendbeforepagenumber@SEonlypage{p.}%
5121
5122 \def\Xendafterpagenumber@apprefwithpage{ }%
5123 \def\Xendafterpagenumber@SErefwithpage{ }%
5124 \def\Xendafterpagenumber@SErefonlypage{ }%
5125
5126 \def\Xendlineprefixsingle@apprefwithpage{}%
5127 \def\Xendlineprefixsingle@SErefwithpage{}%
5128
5129 \def\Xendlineprefixmore@apprefwithpage{}%
5130 \def\Xendlineprefixmore@SErefwithpage{}%
5131
5132 \newtoggle{Xendtwolinesbutnotmore@apprefwithpage}%
5133 \newtoggle{Xendtwolinesbutnotmore@SErefwithpage}%
5134
5135 \def\Xendsublinesep@apprefwithpage{\fullstop}%
5136 \def\Xendsublinesep@SErefwithpage{\fullstop}%
5137
5138 \newtoggle{Xendtwolinesonlyinsamepage@apprefwithpage}%
5139 \newtoggle{Xendtwolinesonlyinsamepage@SErefwithpage}%
5140
5141 \newtoggle{Xendlineflag@apprefwithpage}
5142 \toggletrue{Xendlineflag@apprefwithpage}%Here, exception
5143 \newtoggle{Xendlineflag@SErefwithpage}
5144 \toggletrue{Xendlineflag@SErefwithpage}%Here, exception
5145

```



5146 %

Note that some of these hooks are declared but no user command can change their values. Such hooks are not pertinent for `appref` and `apprefwithpage` pseudo-series, but their values are nonetheless tested in some macros.

```
5147
5148 \xdef\Xboxstartlinenum@appref{Opt}
5149 \xdef\Xboxstartlinenum@SEref{Opt}
5150
5151 \xdef\Xboxendlinenum@appref{Opt}
5152 \xdef\Xboxendlinenum@SEref{Opt}
5153
5154 \xdef\Xendboxstartlinenum@apprefwithpage{Opt}
5155 \xdef\Xendboxstartlinenum@SErefwithpage{Opt}
5156
5157 \xdef\Xendboxendlinenum@apprefwithpage{Opt}
5158 \xdef\Xendboxendlinenum@SErefwithpage{Opt}
5159
5160 %
```

Now, declare the default value of `\@apprefprefixsingle` and `\@apprefprefixmore`, `\@SErefprefix`, `\@SErefprefixmore` and the commands which defines them.

```
5161 \newcommand\@apprefprefixsingle{}%
5162 \newcommand\@SErefprefixsingle{}%
5163
5164 \newcommand\@apprefprefixmore{}%
5165 \newcommand\@SErefprefixmore{}%
5166
5167 \newcommand{\setapprefprefixsingle}[1]{%
5168   \gdef\@apprefprefixsingle{#1}%
5169 }
5170 \newcommand{\setSErefprefixsingle}[1]{%
5171   \gdef\@SErefprefixsingle{#1}%
5172 }
5173
5174 \newcommand{\setapprefprefixmore}[1]{%
5175   \gdef\@apprefprefixmore{#1}%
5176 }
5177 \newcommand{\setSErefprefixmore}[1]{%
5178   \gdef\@SErefprefixmore{#1}%
5179 }
5180
5181 %
```

And now, the main commands: `\appref`, `\apprefwithpage`, `\SEref` and `\SErefwithpage`. These commands call `\reformatted@` and `\reformattedwithpage`, which calls `\printlines` and `\printendlines`. That is why we have previously declared all hooks values tested inside these last commands.

5182

```

5183 \newcommandx{\appref}[2][1,usedefault]{\reformatted@{#1}{#2}{appref}}
5184 \newcommandx{\Seref}[2][1,usedefault]{\reformatted@{#1}{#2}{Seref}}
5185
5186 \newcommandx{\apprefwithpage}[2][1,usedefault]{\reformattedwithpage@
5187 {#1}{#2}{appref}}
5188 \newcommandx{\Serefwithpage}[2][1,usedefault]{\reformattedwithpage@
5189 {#1}{#2}{Seref}}
5190
5191 \newcommand{\reformatted@}[3]{%
5192   \def\do##1{%
5193     \setkeys[mac]{truefootnoteoption}{##1}%
5194   }%
5195   \notblank{#1}{\docsvlist{#1}}{ }%
5196   \xdef\@currentseries{#3}%
5197   \ifcempty{@#3prefixmore}%
5198     {\@apprefprefixsingle}%
5199     {%
5200       \IfEq{\xlineref{#2:start}}{\xlineref{#2:end}}{%
5201         {\csuse{@#3prefixsingle}}%
5202         {\csuse{@#3prefixmore}}%
5203       }%
5204     \ifboolexpr{%
5205       test{\ifcsundef{the@label#2:start}}%
5206       or test{\ifcsundef{the@label#2:end}}%
5207     }%
5208     {\led@warn@pairRefUndefined{#2}\nfss@text{\reset@font\bfseries ??}}%
5209     {\printlines\xpageref{#2:start}|\xlineref{#2:start}|\xsublineref{#2:
start}|\xpageref{#2:end}|\xlineref{#2:end}|\xsublineref{#2:end}|\relax|
xflagref{#2:start}|}%
5210     \def\do##1{%
5211       \setkeys[mac]{falsefootnoteoption}{##1}%
5212     }%
5213     \notblank{#1}{\docsvlist{#1}}{ }%
5214   }%
5215
5216 \newcommand{\reformattedwithpage@}[3]{%
5217   \def\do##1{%
5218     \setkeys[mac]{truefootnoteoption}{##1}%
5219   }%
5220   \notblank{#1}{\docsvlist{#1}}{ }%
5221   \xdef\@currentseries{#3withpage}%
5222   \ifboolexpr{%
5223     test{\ifcsundef{the@label#2:start}}%
5224     or test{\ifcsundef{the@label#2:end}}%
5225   }%
5226   {\led@warn@pairRefUndefined{#2}\nfss@text{\reset@font\bfseries ??}}%
5227   {\printendlines\xpageref{#2:start}|\xlineref{#2:start}|\xsublineref{#2:

```

```

start}|\xpageref{#2:end}|\xlineref{#2:end}|\xsublineref{#2:end}|\relax|\
xflagref{#2:start}|}%
5228 \def\do##1{%
5229 \setkeys[mac]{falsefootnoteoption}{##1}%
5230 }%
5231 \notblank{#1}{\docsvlist{#1}}{ }%
5232 }%
5233
5234 \newcommand{\reformattedonlypage@}[3]{%
5235 \def\do##1{%
5236 \setkeys[mac]{truefootnoteoption}{##1}%
5237 }%
5238 \notblank{#1}{\docsvlist{#1}}{ }%
5239 \xdef\@currentseries{#3onlypage}%
5240 \ifboolexpr{%
5241 test{\ifcsundef{the@label#2:start}}}%
5242 or test{\ifcsundef{the@label#2:end}}}%
5243 }%
5244 {\led@warn@pairRefUndefined{#2}\nfss@text{\reset@font\bfseries ??}}%
5245 {\ifnum\xpageref{#2:start}=\xpageref{#2:end}%
5246 \printnpnum{\xpageref{#2:start}}
5247 \else%
5248 \ifdefined\linrangesep@%
5249 \printnpnum{%
5250 \xpageref{#2:start}%
5251 \linrangesep@%
5252 \xpageref{#2:end}%
5253 }%
5254 \else%
5255 \printnpnum{%
5256 \xpageref{#2:start}%
5257 \csuse{Xendlinrangeseparator@}\@currentseries}%
5258 \xpageref{#2:end}%
5259 }%
5260 \fi%
5261 \fi%
5262 }%
5263 \def\do##1{%
5264 \setkeys[mac]{falsefootnoteoption}{##1}%
5265 }%
5266 \notblank{#1}{\docsvlist{#1}}{ }%
5267 }%
5268 %

```

**\edmakelabel** Sometimes the `\edlabel` command cannot be used to specify exactly the page and line desired; you can use the `\edmakelabel` macro make your own label. For example, if you insert `\edmakelabel{elephant}{10|25|0}` you will have created a new label, and a later call to `\edpageref{elephant}` would print '10' and `\lineref{elephant}` would print '25'. The sub-line number here is zero. `\edmakelabel` takes a label, fol-

lowed by a page and a line number(s) as arguments.  $\LaTeX$  defines a `\makelabel` macro which is used in lists. Peter Wilson has changed the name to `\edmakelabel`.

```
5269 \newcommand*\edmakelabel}[2]{\expandafter\xdef\csname the@label#1\
endcsname{#2}}
5270
5271 %
```

(If you are only going to refer to such a label using `\xxref`, then you can omit entries in the same way as with `\linenum` (see VI.3 p. 114 and V.9 p. 85), since `\xxref` makes a call to `\linenum` in order to do its work.)

## XXIV Side notes

Regular `\marginpars` do not work inside numbered text — they do not produce any note but do put an extra unnumbered blank line into the text.

`\@xympar` Changing `\@xympar` a little at least ensures that `\marginpars` in numbered text do not disturb the flow.

```
5272 \pretocmd{\@xympar}%
5273 {\ifnumberedpar@
5274   \led@warn@NoMarginpars
5275   \@esphack
5276   \else}%
5277 {}%
5278 {}%
5279
5280 \apptocmd{\@xympar}%
5281 {\fi}%
5282 {}
5283 {}
5284
5285 %
```

We provide side notes as replacement for `\marginpar` in numbered text.

`\sidenote@margin` These are the sidenote equivalents to `\line@margin` and `\linenummargin` for specifying which margin. The default is the right margin (opposite to the default for line numbers). `\l@dgetsidenote@margin` returns the number associated to side note margin:

**left** : 0

**right** : 1

**outer** : 2

**inner** : 3

```

5286 \newcount\sidenote@margin
5287 \newcommand*{\sidenotemargin}[1]{\{%
5288   \l@dgetsidenote@margin{#1}%
5289   \ifnum\@l@dttempcntb>\m@ne
5290     \ifledRcol
5291       \global\sidenote@marginR=\@l@dttempcntb
5292     \else
5293       \global\sidenote@margin=\@l@dttempcntb
5294     \fi
5295   \fi}}
5296 \newcommand*{\l@dgetsidenote@margin}[1]{\%
5297   \def\@tempa{#1}\def\@tempb{left}%
5298   \ifx\@tempa\@tempb
5299     \@l@dttempcntb \z@
5300   \else
5301     \def\@tempb{right}%
5302     \ifx\@tempa\@tempb
5303       \@l@dttempcntb \@ne
5304     \else
5305       \def\@tempb{outer}%
5306       \ifx\@tempa\@tempb
5307         \@l@dttempcntb \tw@
5308       \else
5309         \def\@tempb{inner}%
5310         \ifx\@tempa\@tempb
5311           \@l@dttempcntb \thr@@
5312         \else
5313           \led@warn@BadSidenotemargin
5314           \@l@dttempcntb \m@ne
5315         \fi
5316       \fi
5317     \fi
5318   \fi}
5319 \sidenotemargin{right}
5320
5321 %

```

**\l@dlp@rbox** We need two boxes to store sidenote texts.

```

\l@drp@rbox
5322 \newbox\l@dlp@rbox
5323 \newbox\l@drp@rbox
5324
5325 %

```

**\ledlsnotewidth** These specify the width of the left/right boxes (initialised to \marginparwidth), their distance from the text (initialised to \linenumsep), and the fonts used.

```

\ledrsnotewidth
\ledlsnotesep
5326 \newdimen\ledlsnotewidth \ledlsnotewidth=\marginparwidth
\ledrsnotesep
5327 \newdimen\ledrsnotewidth \ledrsnotewidth=\marginparwidth
\ledlsnotefontsetup
5328 \newdimen\ledlsnotesep \ledlsnotesep=\linenumsep
\ledrsnotefontsetup

```

```

5329 \newdimen\ledrsnotesep \ledrsnotesep=\linenumsep
5330 \newcommand*\ledlsnotefontsetup{\raggedleft\footnotesize}
5331 \newcommand*\ledrsnotefontsetup{\raggedright\footnotesize}
5332
5333 %

```

`\ledleftnote` `\ledrightnote`, `\ledrightnote`, `\ledinnernote`, `\ledouternote` are the user commands for left, right, inner and outer sidenotes. The two last one are just alias for the two first one, depending of the page number. `\ledsidenote{<text>}` is the command for a moveable sidenote.

```

\ledsidenote
5334 \newcommand*\ledleftnote[1]{\edtext{}{\l@dlsnote{#1}}}
5335 \newcommand*\ledrightnote[1]{\edtext{}{\l@drsnote{#1}}}
5336
5337 \newcommand*\ledinnernote[1]{%
5338   \ifodd\c@page% Do not use \page@num, because it is not yet calculated
when command is called
5339   \ledleftnote{#1}%
5340   \else%
5341   \ledrightnote{#1}%
5342   \fi%
5343 }
5344
5345 \newcommand*\ledouternote[1]{%
5346   \ifodd\c@page% Do not use \page@num, because it is not yet calculated
when command is called
5347   \ledrightnote{#1}%
5348   \else%
5349   \ledleftnote{#1}%
5350   \fi%
5351 }
5352
5353 \newcommand*\ledsidenote[1]{\edtext{}{\l@dcsnote{#1}}}
5354 %

```

`\l@dlsnote` . The ‘footnotes’ for left, right, and moveable sidenotes. The whole scheme is reminiscent of the critical footnotes code.

```

\l@drsnote
\l@dcsnote
5355 \newif\ifrightnoteup
5356 \rightnoteuptrue
5357
5358 \newcommand*\l@dlsnote[1]{%
5359   \begingroup%
5360   \newcommand{\content}{#1}%
5361   \ifnumberedpar@
5362   \ifledRcol%
5363     \xright@appenditem{\noexpand\l@dlsnote{\expandonce\content}}%
5364     \to\inserts@listR
5365     \global\advance\insert@countR \@ne%
5366   \else%

```

```

5367 \xright@appenditem{\noexpand\vl@dlsnote{\expandonce\content}}{%
5368 \to\inserts@list
5369 \global\advance\insert@count \@ne%
5370 \fi
5371 \fi\ignorespaces\endgroup}
5372
5373 \newcommand*{\l@drsnote}[1]{%
5374 \begingroup%
5375 \newcommand{\content}{#1}%
5376 \ifnumberedpar@
5377 \ifledRcol%
5378 \xright@appenditem{\noexpand\vl@drsnote{\expandonce\content}}{%
5379 \to\inserts@listR
5380 \global\advance\insert@countR \@ne%
5381 \else%
5382 \xright@appenditem{\noexpand\vl@drsnote{\expandonce\content}}{%
5383 \to\inserts@list
5384 \global\advance\insert@count \@ne%
5385 \fi
5386 \fi\ignorespaces\endgroup}
5387
5388 \newcommand*{\l@dcnote}[1]{%
5389 \begingroup%
5390 \newcommand{\content}{#1}%
5391 \ifnumberedpar@
5392 \ifledRcol%
5393 \xright@appenditem{\noexpand\vl@dcnote{\expandonce\content}}{%
5394 \to\inserts@listR
5395 \global\advance\insert@countR \@ne%
5396 \else%
5397 \xright@appenditem{\noexpand\vl@dcnote{\expandonce\content}}{%
5398 \to\inserts@list
5399 \global\advance\insert@count \@ne%
5400 \fi
5401 \fi\ignorespaces\endgroup}
5402
5403 %

```

**\vl@dlsnote** Put the left/right text into boxes, but just save the moveable text. **\l@dcnotetext**, **\vl@drsnote** **\l@dcnotetext@l** and **\l@dcnotetext@r** are etoolbox's lists which will store the content of side notes. We store the content in lists, because we need to loop later on them, in case many sidenote co-exist for the same line. That is there some special test to do, in order to:

- Store the content of **\ledsidenote** to **\l@dcnotetext** in any cases.
- Store the content of **\rightsidenote** to:
  - **\l@dcnotetext** if **\ledsidenote** is to be put on right.
  - **\l@dcnotetext@r** if **\ledsidenote** is to be put on left.

- Store the content of `\leftsidenote` to:
  - `\l@dcnotetext` if `\ledsidenote` is to be put on left.
  - `\l@dcnotetext@l` if `\ledsidenote` is to be put on right.

```

5404 \newcommand*{\vl@dlsnote}[1]{%
5405   \ifledRcol{%
5406     \@l@tempcntb=\sidenote@marginR%
5407     \ifnum\@l@tempcntb>\@ne%
5408       \advance\@l@tempcntb by\page@numR%
5409     \fi%
5410   \else%
5411     \@l@tempcntb=\sidenote@margin%
5412     \ifnum\@l@tempcntb>\@ne%
5413       \advance\@l@tempcntb by\page@num%
5414     \fi%
5415   \fi%
5416   \ifodd\@l@tempcntb%
5417     \listgadd{\l@dcnotetext@l}{#1}%
5418   \else%
5419     \listgadd{\l@dcnotetext}{#1}%
5420   \fi
5421 }
5422 \newcommand*{\vl@drsnote}[1]{%
5423   \ifledRcol{%
5424     \@l@tempcntb=\sidenote@marginR%
5425     \ifnum\@l@tempcntb>\@ne%
5426       \advance\@l@tempcntb by\page@numR%
5427     \fi%
5428   \else%
5429     \@l@tempcntb=\sidenote@margin%
5430     \ifnum\@l@tempcntb>\@ne%
5431       \advance\@l@tempcntb by\page@num%
5432     \fi%
5433   \fi%
5434   \ifodd\@l@tempcntb%
5435     \listgadd{\l@dcnotetext}{#1}%
5436   \else%
5437     \listgadd{\l@dcnotetext@r}{#1}%
5438   \fi%
5439 }
5440 \newcommand*{\vl@dcnote}[1]{\listgadd{\l@dcnotetext}{#1}}
5441
5442 %

```

`\setl@dlp@rbox` `\setl@dlprbox{<lednums>}{<tag>}{<text>}` puts `<text>` into the `\l@dlp@rbox` box. And similarly for the right side box. It is these boxes that finally get displayed in the margins.



```

5443 \newcommand*\setl@dlp@rbox}[1]{%
5444   {\parindent\z@\hsize=\ledlsnotewidth\ledlsnotefontsetup
5445    \global\setbox\l@dlp@rbox
5446    \ifleftnoteup
5447     =\vbox to\z@{\vss #1}%
5448    \else
5449     =\vbox to 0.70\baselineskip{\strut#1\vss}%
5450    \fi}}
5451 \newcommand*\setl@drp@rbox}[1]{%
5452   {\parindent\z@\hsize=\ledrsnotewidth\ledrsnotefontsetup
5453    \global\setbox\l@drp@rbox
5454    \ifrightnoteup
5455     =\vbox to\z@{\vss#1}%
5456    \else
5457     =\vbox to0.7\baselineskip{\strut#1\vss}%
5458    \fi}}
5459 \newif\ifleftnoteup
5460 \leftnoteuptrue
5461 %

```

**\@sidenotesep** This macro is used to separate sidenotes of the same line.

```

5462 \newcommand\setsidenotesep}[1]{\gdef\@sidenotesep{#1}}
5463 \newcommand{\@sidenotesep}{, }
5464 %

```

**\affixside@note** This macro puts any moveable sidenote text into the left or right sidenote box, depending on which margin it is meant to go in. It's a very much stripped down version of `\affixlin@num`.

Before do it, we concatenate all moveable sidenotes of the line, using `\@sidenotesep` as separator. It is the result that we put on the sidenote.

```

5465 \newcommand*\affixside@note}{%
5466   \def\sidenotecontent@{}%
5467   \numgdef\itemcount@{0}%
5468   \def\do##1{%
5469     \ifnumequal{\itemcount@}{0}%
5470     {%
5471       \appto\sidenotecontent@{##1}}% Not print not separator before
the 1st note
5472     {\appto\sidenotecontent@{\@sidenotesep ##1}%
5473     }%
5474     \numgdef\itemcount@{\itemcount@+1}%
5475   }%
5476   \dolistloop{\l@dcnotesnotetext}%
5477   \ifnumgreater{\itemcount@}{1}{\led@err@ManySidenotes}{}%
5478 %

```

And we do the same for left and right notes (not movable).

```

5479 \gdef\@templ@d{%
5480 \gdef\@templ@n{\l@dcstotetext\l@dcstotetext@l\l@dcstotetext@r}%
5481 \ifx\@templ@d\@templ@n \else%
5482 \if@twocolumn%
5483 \if@firstcolumn%
5484 \setl@dlp@rbox{##1}{\sidenotecontent@}%
5485 \else%
5486 \setl@drp@rbox{\sidenotecontent@}%
5487 \fi%
5488 \else%
5489 \l@dtempcntb=\sidenote@margin%
5490 \ifnum\l@dtempcntb>\@ne%
5491 \advance\l@dtempcntb by\page@num%
5492 \fi%
5493 \ifodd\l@dtempcntb%
5494 \setl@drp@rbox{\sidenotecontent@}%
5495 \gdef\sidenotecontent@{%
5496 \numgdef{\itemcount@}{0}%
5497 \dolistloop{\l@dcstotetext@l}%
5498 \ifnumgreater{\itemcount@}{1}{\led@err@ManyLeftnotes}{}%
5499 \setl@dlp@rbox{\sidenotecontent@}%
5500 \else%
5501 \setl@dlp@rbox{\sidenotecontent@}%
5502 \gdef\sidenotecontent@{%
5503 \numgdef{\itemcount@}{0}%
5504 \dolistloop{\l@dcstotetext@r}%
5505 \ifnumgreater{\itemcount@}{1}{\led@err@ManyRightnotes}{}%
5506 \setl@drp@rbox{\sidenotecontent@}%
5507 \fi%
5508 \fi%
5509 \fi%
5510 }
5511 %

```

## XXV Minipages and such

We can put footnotes into minipages. The preparatory code has been set up earlier, all that remains is to ensure that it is available inside a minipage box. This requires some alteration to the kernel code, specifically the `\@iiiminipage` and `\endminipage` macros. We will arrange this so that additional series can be easily added.

`\l@dfeetbeginmini` These will be the hooks in `\@iiiminipage` and `\endminipage`.  
`\l@dfeetendmini` They can be extended to handle other things if necessary.

```

5512 \ifnoledgroup\@else%
5513 \newcommand*{\l@dfeetbeginmini}{\l@dedbeginmini\l@dfambeginmini}
5514 \newcommand*{\l@dfeetendmini}{%
5515 \IfStrEq{critical-familiar}{\@mpfnpos}%
5516 {\l@dedendmini\l@dfamendmini}%

```

```

5517     {%
5518         \IfStrEq{familiar-critical}{\@mpfnpos}%
5519         {\l@dfamendmini\l@dedendmini}%
5520         {\l@dedendmini\l@dfamendmini}%
5521     }%
5522 }%
5523 %

```

**\l@dedbeginmini** These handle the initiation and closure of critical footnotes in a minipage environment.

```

\l@dedendmini
5524 \newcommand*{\l@dedbeginmini}{%
5525     \unless\ifnocritical@%
5526     \def\do##1{\csletcs{v##1footnote}{mpv##1footnote}}%
5527     \dolistloop{\@series}%
5528     \fi%
5529 }
5530 \newcommand*{\l@dedendmini}{%
5531     \unless\ifnocritical@%
5532     \ifl@dpairing%
5533         \ifledRcol%
5534             \flush@notesR%
5535         \else%
5536             \flush@notes%
5537         \fi%
5538     \fi
5539     \def\do##1{%
5540         \ifvoid\csuse{mp##1footins}\else%
5541             \ifl@dpairing\ifparledgroup%
5542                 \ifledRcol%
5543                     \dingdef{\parledgroup@beforenotesR}{\parledgroup@beforenotesR+
5544 skip\@nameuse{mp##1footins}}%
5545                 \else%
5546                     \dingdef{\parledgroup@beforenotesL}{\parledgroup@beforenotesL
5547 +\skip\@nameuse{mp##1footins}}%
5548                 \fi%
5549             \fi\fi%
5550             \csuse{mp##1footgroup}{##1}%
5551             \fi}%
5552     \dolistloop{\@series}%
5553     \fi%
5554 }%
5555 %

```

**\l@dfambeginmini** These handle the initiation and closure of familiar footnotes in a minipage environment.

```

\l@dfamendmini
5555 \newcommand*{\l@dfambeginmini}{%
5556     \unless\ifnofamiliar@%
5557     \def\do##1{\csletcs{vfootnote##1}{mpvfootnote##1}}%
5558     \dolistloop{\@series}%

```

```

5559 \fi%
5560 }%
5561
5562 \newcommand*{\l@dfamendmini}{%
5563 \unless\ifnofamiliar%
5564 \def\do##1{%
5565 \ifvoid\csuse{mpfootins##1}\else%
5566 \csuse{mpfootgroup##1}{##1}%
5567 \fi}%
5568 \dolistloop{\@series}%
5569 \fi%
5570 }%
5571 %

```

`\@iiiminipage` This is our extended form of the kernel `\@iiiminipage` defined in `ltboxes.dtx`.

```

5572 \patchcmd%
5573 {\@iiiminipage}%
5574 {\let\@footnotetext\@mpfootnotetext}%
5575 {\let\@footnotetext\@mpfootnotetext\l@dfeetbeginmini}%
5576 {}%
5577 {\led@error@fail@patch@iiiminipage}%
5578 %

```

`\endminipage` This is our extended form of the kernel `\endminipage` defined in `ltboxes.dtx`.

```

5579 \patchcmd%
5580 {\endminipage}%
5581 {\footnoterule}%
5582 {\footnoterule\l@advance@parledgroup@beforenormalnotes}%
5583 {}%
5584 {\led@error@fail@patch@endminipage}
5585
5586 \patchcmd%
5587 {\endminipage}%
5588 {\@minipagefalse}%
5589 {\l@dfeetendmini\@minipagefalse}%
5590 {}%
5591 {\led@error@fail@patch@endminipage}
5592
5593 %

```

`\l@dunboxmpfoot` `\l@dunboxmpfoot` insert normal footnotes for ledgroup.  
`\l@advance@parledgroup@beforenormalnotes`

```

5594 \newcommand*{\l@dunboxmpfoot}{%
5595 \vskip\skip\@mpfootins
5596 \normalcolor
5597 \footnoterule
5598 \l@advance@parledgroup@beforenormalnotes
5599 \unvbox\@mpfootins%

```

```
5600 }
5601 %
```

When using parallel ledgroup, we need to store the vertical space added before footnote, in order to compensate them between left and right pages.

```
5602 \newcommand{\l@advance@parledgroup@beforenormalnotes}{%
5603   \ifparledgroup
5604     \ifl@dpairing
5605       \ifledRcol
5606         \dimdef{\parledgroup@beforenotesR}{\parledgroup@beforenotesR+
skip\@mpfootins}
5607       \else
5608         \dimdef{\parledgroup@beforenotesL}{\parledgroup@beforenotesL+
skip\@mpfootins}
5609       \fi
5610     \fi
5611   \fi
5612 }
5613 %
```

**ledgroup** This environment puts footnotes at the end, even if that happens to be in the middle of a page, or crossing a page boundary. It is a sort of unboxed, fixed width minipage.

```
5614 \newenvironment{ledgroup}{%
5615   \resetprevpage@num%
5616   \def\@mpfn{mpfootnote}\def\thempfn{\thempfootnote}\c@mpfootnote\z@%
5617   \let\@footnotetext\@mpfootnotetext
5618   \l@dfeetbeginmini%
5619 }{%
5620   \par
5621   \unskip
5622   \ifvoid\@mpfootins\else
5623     \l@dunboxmpfoot
5624   \fi
5625   \l@dfeetendmini%
5626 }
5627 %
5628 %
```

**ledgroupsize** `\begin{ledgroupsize}[\langle pos \rangle]{\langle width \rangle}`

This environment puts footnotes at the end, even if that happens to be in the middle of a page, or crossing a page boundary. It is a sort of unboxed, variable `\langle width \rangle` minipage. The optional `\langle pos \rangle` controls the sideways position of numbered text.

```
5629 \newenvironment{ledgroupsize}[2][l]{%
5630 %
```

Set the various text measures.

```
5631 \hspace #2\relax
```

```

5632 %% \textwidth #2\relax
5633 %% \columnwidth #2\relax
5634 %

```

Initialize fills for centering.

```

5635 \let\ledllfill\hfil
5636 \let\ledrlfill\hfil
5637 \def\@tempa{#1}\def\@tempb{1}%
5638 %

```

Left adjusted numbered lines

```

5639 \ifx\@tempa\@tempb
5640 \let\ledllfill\relax
5641 \else
5642 \def\@tempb{r}%
5643 \ifx\@tempa\@tempb
5644 %

```

Right adjusted numbered lines

```

5645 \let\ledrlfill\relax
5646 \fi
5647 \fi
5648 %

```

Set up the footnoting.

```

5649 \def\@mpfn{mpfootnote}\def\thempfn{\thempfootnote}\c@mpfootnote\z@
5650 \let\@footnotetext\@mpfootnotetext
5651 \l@dfetbeginmini%
5652 }{%
5653 \par
5654 \unskip
5655 \ifvoid\@mpfootins\else
5656 \l@dunboxmpfoot
5657 \fi
5658 \l@dfetendmini%
5659 }
5660
5661 %

```

Close the \ifnoledgroup@else.

```

5662 \fi%
5663 %

```

**\ifledgroupnotesL@** These boolean tests check if we are in the notes of a ledgroup. If we are, we do not  
**\ifledgroupnotesR@** number the lines. It could be useful for parallel ledgroup of reledpar.

```

5664 \newif\ifledgroupnotesL@
5665 \newif\ifledgroupnotesR@
5666 %

```

## XXVI Indexing

Here is some code for indexing using page and line numbers.

First, ensure that `imakeidx` or `indextools` is loaded *before* `eledmac`.

```

5667 \AtBeginDocument{%
5668   \unless\ifl@imakeidx%
5669     \ifpackageloaded{imakeidx}{\led@error@ImakeidxAfterEledmac}{}%
5670   \fi%
5671   \unless\ifl@indextools%
5672     \ifpackageloaded{indextools}{\led@error@indextoolsAfterEledmac}{}%
5673   \fi%
5674 }
5675 %

```

`\pagelinesep` In order to get a correct line number we have to use the label/ref mechanism. These  
`\edindexlab` macros are for that.

```

\c@labidx
5676 \newcommand{\pagelinesep}{-}
5677 \newcommand{\edindexlab}{${&}}
5678 \newcounter{labidx}
5679 \setcounter{labidx}{0}
5680
5681 %

```

`\doedindexlabel` This macro sets an `\edlabel`.

```

5682 \newcommand{\doedindexlabel}{%
5683   \stepcounter{labidx}%
5684   \edlabel{\edindexlab\thelabidx}%
5685 }
5686
5687 %

```

`\thepageline` This macro makes up the page/line number combo from the label/ref.

```

5688 \newcommand{\thepageline}{%
5689   \thepage%
5690   \pagelinesep%
5691   \xlineref{\edindexlab\thelabidx}%
5692 }
5693 %

```

`\thestartpageline` These macros make up the page/line start/end number when the `\edindex` command  
`\theendpageline` is called in critical notes.

```

5694 \newcommand{\thestartpageline}{%
5695   \l@dparsedstartpage%
5696   \pagelinesep%
5697   \l@dparsedstartline%

```

```

5698 }
5699 \newcommand{\theendpageline}{%
5700   \l@dparsedendpage%
5701   \pagelinesep%
5702   \l@dparsedendline%
5703 }
5704 %

```

**\if@edindex@fornote@true** This boolean test is switching at the beginning of each critical note, to allow index referring to this note.

```

5705 \newif\if@edindex@fornote@
5706 %

```

**\prepare@edindex@fornote** This macro is called at the beginning of each critical note. It switches some parameters, to allow index referring to this note, with reference to page and line number. It also defines `\@ledinnote@command` which will be printed as an encapsulating command after the |.

```

5707 \newcommand{\prepare@edindex@fornote}[1]{%
5708   \l@dp@rsefootspec#1|}%
5709   \@edindex@fornote@true%
5710 }
5711 %

```

**\get@edindex@ledinnote@command** The `\get@edindex@ledinnote@command` macro defines a `\@ledinnote@command` command which is added as an attribute (text inserted after |) of the next index entry. Consequently, we write the definition of the location reference attribute in the .xdy file.

```

5712 \newcommand{\get@edindex@ledinnote@command}{%
5713   \ifxindy%
5714     \gdef\@ledinnote@command{%
5715       ledinnote\thelabidx%
5716     }%
5717     \ifxindyhyperref%
5718       \immediate\write\eledmac@xindy@out{%
5719         (define-attributes ("ledinnote\thelabidx"))^^J
5720         \space\space(markup-locref^^J
5721         \eledmacmarkuplocdepth^^J
5722         :open "\string\ledinnote[\edindexlab\thelabidx]{\@index@command
5723       }{"^^J
5724         :close "}"^^J
5725         :attr "ledinnote\thelabidx"^^J
5726       )
5727     }%
5728   \else%
5729     \immediate\write\eledmac@xindy@out{%
5730       (define-attributes ("ledinnote\thelabidx"))^^J

```



```

5730 \space\space(markup-locref^^J
5731 \eledmacmarkuplocorefdepth^^J
5732 :open "\string\ledinnote{\@index@command}{^^J
5733 :close "}"^^J
5734 :attr "ledinnote\thelabidx"^^J
5735 )
5736 }%
5737 \fi%
5738 %

```

If we do not use xindy option, \@ledinnote@command will produce something like ledinnote{formattingcommand}.

```

5739 \else%
5740 \gdef\@ledinnote@command{%
5741 ledinnote[\edindexlab\thelabidx]{\@index@command}%
5742 }%
5743 \fi%
5744 }
5745 %

```

**\get@index@command** This macro is used to analyse if a text to be indexed has a command after a |.

```

5746 \def\get@index@command#1|#2+{%
5747 \gdef\@index@txt{#1}%
5748 \gdef\@index@command{#2}%
5749 \xdef\@index@parenthesis{%
5750 \IfBeginWith{\@index@command}{(}{%
5751 \StrGobbleLeft{\@index@command}{1}{\@index@command@}%
5752 \global\let\@index@command\@index@command@%
5753 \xdef\@index@parenthesis{(%
5754 }%
5755 \IfBeginWith{\@index@command}{)}{%
5756 \StrGobbleLeft{\@index@command}{1}{\@index@command@}%
5757 \global\let\@index@command\@index@command@%
5758 \xdef\@index@parenthesis{)%
5759 }%
5760 }
5761 %

```

**\ledinnote** These macros are used to specify that an index reference points to a note. Arguments of \ledinnote are: #1 (optional): the label for the hyperlink, #2: command applied to the number, #3: the number itself.

**\ledinnotehyperpage**

**\ledinnotemark**

```

5762 \newcommandx{\ledinnote}[3][1,usedefault]{%
5763 \ifboolexpr{%
5764 test{\ifdefequal{\iftrue}{\ifHy@hyperindex}}%
5765 or%
5766 bool {xindyhyperref@}%
5767 }%

```

```

5768   {%
5769   \csuse{#2}{\hyperlink{#1}{\ledinnotemark{#3}}}%
5770   }%
5771   {%
5772   \csuse{#2}{\ledinnotemark{#3}}%
5773   }%
5774 }%
5775 \newcommand{\ledinnotehyperpage}[2]{\csuse{#1}{\ledinnotemark{\hyperpage
5776 {#2}}}}%
5777 \newcommand{\ledinnotemark}[1]{#1\emph{n}}%
5778 %

```

Eledmac and ledmac were using the specific indexing tools of the memoir in order to allow multiple index. However, eledmac used imakeidx or indextools tools when one these two package was loaded. This system forced to maintained a double code, which was not very useful. Since reledmac, we use only the imakeidx or indextools tools.

The memoir class provides more flexible indexing than the standard classes. We need different code if the memoir class is being used, except if imakeidx or indextools is used.

```

\edindex Write the index information to the idx file.
\@wredindex
5778 \newcommand{\@wredindex}[2][1=\expandonce\jobname,usedefault]{%#1 = the
index name, #2 = the text
5779   \ifl@imakeidx%
5780   \if@edindex@fornote%
5781   \IfSubStr[1]{#2}{|}{\get@index@command#2+}{\get@index@command#2|+}%
5782   \get@edindex@ledinnote@command%
5783   \expandafter\imki@wrindexentry{#1}{\@index@txt|(\@ledinnote@command
}{\thestartpageline}%
5784   \expandafter\imki@wrindexentry{#1}{\@index@txt|)\@ledinnote@command
}{\theendpageline}%
5785   \else%
5786   \get@edindex@hyperref{#2}%
5787   \imki@wrindexentry{#1}{\@index@txt\@edindex@hyperref}{\thepageline}%
5788   \fi%
5789   \else%
5790   \if@edindex@fornote%
5791   \IfSubStr[1]{#2}{|}{\get@index@command#2+}{\get@index@command#2|+}%
5792   \get@edindex@ledinnote@command%
5793   \expandafter\protected@write\@indexfile{}%
5794   {\string\indexentry{\@index@txt|(\@ledinnote@command}{\thestartpageline}
}%
5795   }%
5796   \expandafter\protected@write\@indexfile{}%
5797   {\string\indexentry{\@index@txt|)\@ledinnote@command}{\theendpageline}
}%
5798   }%
5799   \else%
5800   \protected@write\@indexfile{}%
5801   {\string\indexentry{#2}{\thepageline}

```

```

5802 }%
5803 \fi%
5804 \fi%
5805 \endgroup
5806 \@esphack%
5807 }
5808 %

```

Need to add the definition of `\edindex` to `\makeindex`, and initialise `\edindex` to do nothing.

```

5809 \pretocmd{\makeindex}{%
5810 \def\edindex{\@bsphack
5811 \doedindexlabel
5812 \begingroup
5813 \@sanitize
5814 \@wredindex}}{}{}
5815 \newcommand{\edindex}[1]{\@bsphack\@esphack}
5816 %

```

`\hyperlinkformat` `\hyperlinkformat` command is to be used to have both a internal hyperlink and a format, when indexing.

```

5817 \newcommand{\hyperlinkformat}[3]{%
5818 \ifstrepty{#1}%
5819 {\hyperlink{#2}{#3}}%
5820 {\csuse{#1}{\hyperlink{#2}{#3}}}%
5821 }}
5822 %

```

`\hyperlinkR` `\hyperlinkR` command is to be used to create a internal hyperlink and `\ledRflag`, when indexing.

```

5823 \newcommand{\hyperlinkR}[2]{%
5824 \hyperlink{#1}{#2\@Rlineflag}%
5825 }%
5826 %
5827 %

```

`\hyperlinkformatR` `\hyperlinkformatR` command is to be used to create a internal hyperlink, a format and a `\@Rlineflag`, when indexing.

```

5828 \newcommand{\hyperlinkformatR}[3]{%
5829 \hyperlinkformat{#1}{#2}{#3\@Rlineflag}%
5830 }%
5831 %
5832 %

```

`\get@edindex@hyperref` `\get@edindex@hyperref` is to be used to define the `\@edindex@hyperref` macro, which, in index, links to the point where the index was called (with `hyperref`).

```

5833 \newcommand{\get@edindex@hyperref}[1]{%
5834 %

```

We have to disable temporary spaces to work through a xstring bug (or feature?)

```

5835 \edef\temp@{%
5836 \catcode`\ =9 %space need for catcode
5837 \detokenize{#1}%For active character in unicode
5838 \catcode`\ =10 % space need for catcode
5839 }%
5840 %

```

Now, we define \@edindex@hyperref if the hyperindex of hyperref is enabled.

```

5841 \ifdefequal{\iftrue}{\ifHy@hyperindex}{%
5842 \IfSubStr{\temp@}{|}%
5843 {\get@index@command#1+%
5844 \ifledRcol%
5845 \gdef\@edindex@hyperref{|\@index@parenthesis %space kept
5846 hyperlinkformatR{\@index@command}%
5847 {\edindexlab\thelabidx}}%
5848 \else%
5849 \gdef\@edindex@hyperref{|\@index@parenthesis %space kept
5850 hyperlinkformat{\@index@command}%
5851 {\edindexlab\thelabidx}}%
5852 \fi%
5853 }%
5854 {\get@index@command#1|+%
5855 \ifledRcol%
5856 \gdef\@edindex@hyperref{|\hyperlinkR{\edindexlab\thelabidx}}%
5857 \else%
5858 \gdef\@edindex@hyperref{|\hyperlink{\edindexlab\thelabidx}}%
5859 \fi%
5860 }%
5861 }%
5862 %

```

```

5863 % If we use both xindy and hyperref, first get the \protect\cs{
index@command} command.
5864 % Then define \protect\cs{@edindex@hyperref} in the form \verb+eledmacXXX+
5865 % \begin{macrocode}
5866 {\ifxindyhyperref%
5867 \IfSubStr{\temp@}{|}%
5868 {\get@index@command#1+%
5869 {\get@index@command#1|+%
5870 \gdef\@edindex@hyperref{|\eledmac\thelabidx}}%
5871 %

```

If we start a reference range by a opening parenthesis, store the \thelabidx for the current \edindex, then define \@edindex@hyperref in the form |(eledmac\thelabidx.

```

5872 \IfStrEq{\@index@parenthesis}{(}%

```

```

5873     {%
5874     \csxdef{xindyparenthesis@\@index@txt}{\thelabidx}%
5875     \gdef\@edindex@hyperref{|\(eledmac\thelabidx}%
5876     }%
5877     {}%
5878 %

```

This `\thelabidx` will be called back at the closing parenthesis, to have the same number in `\@edindex@hyperref` command that we had at the opening parenthesis. `\@edindex@hyperref` start by a closing parenthesis, then followed by `eledmacXXX` where `XXX` is the `\thelabidx` of the opening `\edindex`.

```

5879     \IfStrEq{\@index@parenthesis}{})}%
5880     {%
5881     \xdef\@edindex@hyperref{|\)eledmac\csuse{xindyparenthesis@\@index@txt}}%
5882     \global\csundef{xindyparenthesis@\@index@txt}%
5883     }%
5884 %

```

Write in the `.xdy` file the attributes of the location.

```

5885     {%
5886     \immediate\write\eledmac@xindy@out{%
5887     (define-attributes ("eledmac\thelabidx"))^^J
5888     \space\space(markup-locref^^J
5889     \eledmacmarkuplocrefdepth^^J
5890     :open "\string\hyperlink%
5891     \ifledRcol R\fi%
5892     {\edindexlab\thelabidx}%
5893     {\ifdefempty{\@index@command}%
5894     {}%
5895     {\@backslashchar\@index@command}%
5896     {"^^J
5897     :close "}")^^J
5898     :attr "eledmac\thelabidx"^^J
5899     )
5900     }%
5901     }%
5902 %

```

And now, in any other case.

```

5903     \else%
5904     \gdef\@index@txt{#1}%
5905     \gdef\@edindex@hyperref{}%
5906     \fi%
5907     }%
5908 }
5909 %

```

## XXVII Verse

The original code is principally Wayne Sullivan’s code from `edstanza`. However, the code has been many time modified by Maïeul Rouquette in order to obtain new features and improved compatibility with `reledpar`.

### XXVII.1 Hanging symbol management

`\@hangingsymbol` The macro `\@hangingsymbol` is used to insert a symbol on each hanging of verses. It is set by user level macro `\sethangingsymbol`.  
`\ifinstanza` For example, in french typographie the symbol is ‘[’. We obtain it by the next code:

```
\sethangingsymbol{[,]}
```

The `\ifinstanza` boolean is used to be sure that we are in a stanza part.

```
5910 \def\@hangingsymbol{}
5911 \newcommand*{\sethangingsymbol}[1]{%
5912   \gdef\@hangingsymbol{#1}%
5913 }%
5914 \newif\ifinstanza
5915 %
```

`\inserthangingsymbol` The boolean `\ifinserthangingsymbol` is set to TRUE when `\@lock` is greater than 1, i.e. when we are not in the first line of a verse. The switch of `\ifinserthangingsymbol` is made in `\do@line` before the printing of line but after the line number calculation.

```
5916 \newif\ifinserthangingsymbol
5917 \newcommand{\inserthangingsymbol}{%
5918   \ifinserthangingsymbol%
5919     \ifinstanza%
5920       \@hangingsymbol%
5921     \fi%
5922   \fi%
5923 }
5924 %
```

### XXVII.2 Using & character

`\ampersand` Within a stanza the `\&` macro is going to be usurped. We need an alias in case an `&` needs to be typeset in a stanza. Define it rather than letting it in case some other package has already defined it.

```
5925 \newcommand*{\ampersand}{\char`\&}
5926
5927 %
```

### XXVII.3 Code category setting

`\stanza@count` Before we can define the main macros we need to save and reset some category codes.  
`\stanzaindentbase` To save the current values we use `\next` and `\body` from the `\loop` macro.

```
5928 \chardef\body=\catcode`\@
5929 \catcode`\@=11
5930 \chardef\next=\catcode`\&
5931 \catcode`\&=\active
5932
5933 %
```

### XXVII.4 Stanza count and indent

A count register is allocated for counting lines in a stanza; also allocated is a dimension register which is used to specify the base value for line indentation; all stanza indentations are multiples of this value. The default value of `\stanzaindentbase` is 20pt.

```
5934 \newcount\stanza@count
5935 \newlength{\stanzaindentbase}
5936 \setlength{\stanzaindentbase}{20pt}
5937
5938 %
```

`\strip@szacnt` The indentations of stanza lines are non-negative integer multiples of the unit called  
`\setstanzavalues` `\stanzaindentbase`. To make it easier for the user to specify these numbers, some list macros are defined. These take numerical values in a list separated by commas and assign the values to special control sequences using `\mathchardef`. Though this does limit the range from 0 to 32767, it should suffice for most applications, including *penalties*, which will be discussed below.

```
5939 \def\strip@szacnt#1,#2|{\def\@tempb{#1}\def\@tempa{#2|}}
5940 \newcommand*\setstanzavalues}[2]{\def\@tempa{#2,,|}%
5941 \stanza@count\z@
5942 \def\next{\expandafter\strip@szacnt\@tempa
5943 \ifx\@tempb\empty\let\next\relax\else
5944 \expandafter\mathchardef\csname #1@\number\stanza@count
5945 \@endcsname\@tempb\relax
5946 \advance\stanza@count\@ne\fi\next}%
5947 \next}
5948
5949 %
```

`\setstanzaindents` In the original edmac, `\setstanzavalues{sza}{\langle...⟩}` had to be called to set the in-  
`\setstanzapenalties` dents, and similarly `\setstanzavalues{szp}{\langle...⟩}`. to set the penalties. `\setstanzaindents` and `\setstanzapenalties` macros are a convenience to give the user one less thing to worry about (misspelling the first argument).

```
5950 \newcommand*\setstanzaindents[1]{\setstanzavalues{sza}{#1}}
5951 \newcommand*\setstanzapenalties[1]{\setstanzavalues{szp}{#1}}
```

```
5952 %
5953 %
```

**\managestanza@modulo** Since version 0.13, the `stanzaindentsrepetition` counter can be used when the indentation is repeated every  $n$  verses. The `\managestanza@modulo` is a command which modifies the counter `stanza@modulo`. The command adds 1 to `stanza@modulo`, but if `stanza@modulo` is equal to the `stanzaindentsrepetition` counter, the command restarts it.

```
5954 \newcounter{stanzaindentsrepetition}
5955 \newcount\stanza@modulo
5956
5957 \newcommand*{\managestanza@modulo}[0]{%
5958   \advance\stanza@modulo\@ne%
5959   \ifnum\stanza@modulo>\value{stanzaindentsrepetition}%
5960     \stanza@modulo\@ne%
5961   \fi%
5962 }
5963 %
```

**\stanzaindent** The macro `\stanzaindent`, when called at the beginning of a verse, changes the indentation normally defined for this verse by `\setstanzaindent`. The starred version **\stanzaindent\*** skips the current verse for the repetition of stanza indent.

```
5964 \newcommand{\stanzaindent}[1]{%
5965   \hspace{\dimexpr#1\stanzaindentbase-\parindent\relax}%
5966   \ignorespaces%
5967 }%
5968 \WithSuffix\newcommand\stanzaindent*[1]{%
5969   \stanzaindent{#1}%
5970   \global\advance\stanza@modulo-\@ne%
5971   \ifnum\stanza@modulo=0%
5972     \global\stanza@modulo=\value{stanzaindentsrepetition}%
5973   \fi%
5974   \ignorespaces%
5975 }%
5976 %
```

## XXVII.5 Numbering stanza

Here, macro for numbering stanza. First, the stanza counter.

```
\thestanza77 \newcounter{stanza}
5978 \renewcommand{\thestanza}{%
5979   \textbf{\arabic{stanza}}%
5980 }
5981 %
```



`\ifnumberstanza` Then, macro to activate automatically numbering of stanza.

```
5982 \newif\ifnumberstanza%
5983 %
```

`\@insertstanzanumber` Now, macro called at the first line of of verse of a stanza.

```
5984 \newcommand{\@insertstanzanumber}[0]{%
5985   \ifnumberstanza%
5986     \ifl@dpairing%
5987       \ifledRcol%
5988         \stanzanumwrapper{\thestanzaR}%
5989       \else%
5990         \stanzanumwrapper{\thestanzaL}%
5991       \fi%
5992     \else%
5993       \stanzanumwrapper{\thestanza}%
5994     \fi%
5995     \setline{1}%
5996   \fi%
5997 }%
5998 %
```

`\@advancestanzanumber` Also a command to advance the counter of stanza.

```
5999 \newcommand{\@advancestanzanumber}[0]{%
6000   \ifnumberstanza%
6001     \ifl@dpairing%
6002       \ifledRcol%
6003         \addtocounter{stanzaR}{1}%
6004       \else%
6005         \addtocounter{stanzaL}{1}%
6006       \fi%
6007     \else%
6008       \addtocounter{stanza}{1}%
6009     \fi%
6010   \fi%
6011 }%
6012 %
```

`\stanzanumwrapper` And finally, the wrapper for stanza number

```
6013 \newcommand{\stanzanumwrapper}[1]{%
6014   \flagstanza{#1}%
6015 }%
6016 %
```

## XXVII.6 Stanza number in note

Here, the command called when printing stanza number in notes.

```

6017 \newcommand{\printstanza}[0]{%
6018   \ifboolexpr{bool{l@dpairing} or bool{l@dprintingpages} or bool{
l@dprintingcolumns}}{%
6019     \ifledRcol{%
6020       \thestanzaR%
6021     }else%
6022       \thestanzaL%
6023     \fi%
6024   }{%
6025     \thestanza%
6026   }%
6027 }
6028 %

```

## XXVII.7 Main work

`\stanza@line` Now we arrive at the main works. `\stanza@line` sets the indentation for the line and starts a numbered paragraph—each line is treated as a paragraph. `\stanza@hang` sets the hanging indentation to be used if the stanza line requires more than one print line.

If it is known that each stanza line will fit on one print line, it is advisable to set the hanging indentation to zero. `\sza@penalty` places the specified penalty following each stanza line. By default, this facility is turned off so that no penalty is included. However, the user may initiate these penalties to indicate good and bad places in the stanza for page breaking.

```

6029 \newcommandx{\stanza@line}[1][1]{
6030   \ifnum\value{stanzaindentsrepetition}=0
6031     \parindent=\csname sza@\number\stanza@count
        @\endcsname\stanzaindentbase
6032   }else
6033     \parindent=\csname sza@\number\stanza@modulo
        @\endcsname\stanzaindentbase
6034     \managestanza@modulo
6035   \fi
6036   \pstart[#1]\stanza@hang\ignorespaces}
6037 \xdef\stanza@hang{\noexpand\leavevmode\noexpand\startlock
6038   \hangindent\expandafter
6039   \noexpand\csname sza@0@\endcsname\stanzaindentbase
6040   \hangafter\@ne}
6041 \def\sza@penalty{\count@\csname szp@\number\stanza@count @\endcsname
6042   \ifnum\count@>\@M\advance\count@-\@M\penalty-\else
6043   \penalty\fi\count@}
6044 %
6045

```

`\@startstanza` Now we have the components of the `\stanza` macro, which appears at the start of a group of lines. This macro initializes the count and checks to see if hanging indentation and penalties are to be included. Hanging indentation suspends the line count, so that the enumeration is by verse line rather than by print line. If the print line count is

desired, invoke `\let\startlock\relax` and do the same for `\endlock`. Here and above we have used `\xdef` to make the stored macros take up a bit less space, but it also makes them more obscure to the reader. Lines of the stanza are delimited by ampersands `&`. The last line of the stanza must end with `\&`.

```

6047 \xdef\@startstanza[#1]{%
6048   \noexpand\instanzatrue\expandafter
6049   \begingroup%
6050   \catcode`\noexpand\&\active%
6051   \global\stanza@count\@ne\stanza@modulo\@ne
6052   \noexpand\ifnum\expandafter\noexpand
6053   \csname sz@0@\endcsname=\z@\let\noexpand\stanza@hang\relax
6054   \let\noexpand\endlock\relax\noexpand\else\interlinepenalty
6055   \@M\rightskip\z@ plus 1fil\relax\noexpand\fi\noexpand\ifnum
6056   \expandafter\noexpand\csname szp@0@\endcsname=\z@
6057   \let\noexpand\sza@penalty\relax\noexpand\fi%
6058   \def\noexpand&{%
6059     \noexpand\newverse[] []}%
6060   \def\noexpand\&{\noexpand\@stopstanza}%
6061   \noexpand\@advancestanzanumber%
6062   \noexpand\stanza@line[#1]\noexpand\@insertstanzanumber%
6063   \let\par\relax\ignorespaces%No paragraph in verses
6064 }
6065
6066 \newcommandx{\stanza}[1][1,usedefault]{\@startstanza[#1]}
6067
6068 \newcommandx{\@stopstanza}[1][1,usedefault]{%
6069   \unskip%
6070   \endlock%
6071   \pend[#1]%
6072   \endgroup%
6073   \instanzafalse%
6074 }
6075
6076 \newcommandx*{\newverse}[2][1,2,usedefault]{%
6077   \unskip%
6078   \endlock\pend[#1]\sza@penalty\global%
6079   \advance\stanza@count\@ne\stanza@line[#2]%
6080 }
6081
6082 %

```

**\flagstanza** Use `\flagstanza[len]{text}` at the start of a line to put *text* a distance *len* before the start of the line. The default for *len* is `\stanzaindentbase`.

```

6083 \newcommand*{\flagstanza}[2][\stanzaindentbase]{%
6084   \hskip -#1\llap{#2}\hskip #1\ignorespaces}
6085
6086 %

```

## XXVII.8 Restore catcode and penalties

The ampersand & is used to mark the end of each stanza line, except the last, which is marked with \&. This means that \halign may not be used directly within a stanza line. This does not affect macros involving alignments defined outside \stanza \&. Since these macros usurp the control sequence \&, the replacement \ampersand is defined to be used if this symbol is needed in a stanza. Also we reset the modified category codes and initialize the penalty default.

```
6087 \catcode`\&=\next
6088 \catcode`\@=\body
6089 \setstanzavalues{szp}{0}
6090
6091 %
```

## XXVIII Arrays and tables

### XXVIII.1 Preamble: macro as environment

The following is borrowed, and renamed, from the amsmath package. See also the CTT thread ‘*eeq and amstex*’, 1995/08/31, started by Keith Reckdahl and ended definitively by David M. Jones.

Several of the [math] macros scan their body twice. This means we must collect all text in the body of an environment form before calling the macro.

**\@emptytoks** This is actually defined in the amsgen package.

```
6092 \newtoks\@emptytoks
6093
6094 %
```

The rest is from amsmath.

**\l@denvbody** A token register to contain the body.

```
6095 \newtoks\l@denvbody
6096
6097 %
```

**\addtol@denvbody** \addtol@denvbody{arg} adds arg to the token register \l@denvbody.

```
6098 \newcommand{\addtol@denvbody}[1]{%
6099 \global\l@denvbody\expandafter{\the\l@denvbody#1}}
6100
6101 %
```

`\l@dcollect@body` The macro `\l@dcollect@body` starts the scan for the `\end{env}` command of the current environment. It takes a macro name as argument. This macro is supposed to take the whole body of the environment as its argument. For example, given `cenv#1{...}` as a macro that processes #1, then the environment form, `\begin{env}` would call `\l@dcollect@body\cenv`.

```

6102 \newcommand{\l@dcollect@body}[1]{%
6103   \l@denbody{\expandafter#1\expandafter{\the\l@denbody}}}%
6104   \edef\processl@denbody{\the\l@denbody\noexpand\end{\@currenvir}}%
6105   \l@denbody\@emptytoks \def\l@dbegin@stack{b}%
6106   \begingroup
6107     \expandafter\let\csname\@currenvir\endcsname\l@dcollect@@body
6108     \edef\processl@denbody{\expandafter\noexpand\csname\@currenvir\endcsname}%
6109     \processl@denbody%
6110   }%
6111
6112 %

```

`\l@dpush@begins` When adding a piece of the current environment's contents to `\l@denbody`, we scan it to check for additional `\begin` tokens, and add a 'b' to the stack for any that we find.

```

6113 \def\l@dpush@begins#1\begin#2{%
6114   \ifx\end#2\else b\expandafter\l@dpush@begins\fi}
6115
6116 %

```

`\l@dcollect@@body` `\l@dcollect@@body` takes two arguments: the first will consist of all text up to the next `\end` command, and the second will be the `\end` command's argument. If there are any extra `\begin` commands in the body text, a marker is pushed onto a stack by the `\l@dpush@begins` function. Empty state for this stack means we have reached the `\end` that matches our original `\begin`. Otherwise we need to include the `\end` and its argument in the material we are adding to the environment body accumulator.

```

6117 \def\l@dcollect@@body#1\end#2{%
6118   \edef\l@dbegin@stack{\l@dpush@begins#1\begin\end
6119     \expandafter\@gobble\l@dbegin@stack}%
6120   \ifx\@empty\l@dbegin@stack
6121     \endgroup
6122     \@checkend{#2}%
6123     \addtol@denbody{#1}%
6124   \else
6125     \addtol@denbody{#1\end{#2}}%
6126   \fi
6127   \processl@denbody % A little tricky! Note the grouping
6128 }
6129
6130 %

```

There was a question on CTT about how to use `\collect@body` for a macro taking an argument. The following is part of that thread.

```
From: Heiko Oberdiek <oberdiek@uni-freiburg.de>
Newsgroups: comp.text.tex
Subject: Re: Using \collect@body with commands that take >1 argument
Date: Fri, 08 Aug 2003 09:03:20 +0200
```

```
eed132@psu.edu (Evan) wrote:
> I'm trying to make a new Latex environment that acts like the>
> \colorbox command that is part of the color package. I looked through
> the FAQ and ran across this bit about using the \collect@body command
> that is part of AMSLaTeX:
> http://www.tex.ac.uk/cgi-bin/texfaq2html?label=cmdasenv
>
> It almost works. If I do something like the following:
> \newcommand{\redbox}[1]{\colorbox{red}{#1}}
>
> \makeatletter
> \newenvironment{redbox}{\collect@body \redbox}{}
```

You will get an error message: Command `\redbox` already defined.  
Thus you must rename either the command `\redbox` or the environment name.

```
> \begin{coloredbox}{blue}
> Yadda yadda yadda... this is on a blue background...
> \end{coloredbox}
> and can't figure out how to make the \collect@body take this.

> \collect@body \colorbox{red}
> \collect@body {\colorbox{red}}
```

The argument of `\collect@body` has to be one token exactly.

```
\documentclass{article}
\usepackage{color}
\usepackage{amsmath}

\newcommand{\redbox}[1]{\colorbox{red}{#1}}
\makeatletter
\newenvironment{coloredbox}[1]{%
  \def\next@{\colorbox{#1}}%
  \collect@body\next@
}{%

% ignore spaces at begin and end of environment
\newenvironment{coloredboxII}[1]{%
  \def\next@{\mycoloredbox{#1}}%
  \collect@body\next@
```

```

}{}
\newcommand{\mycoloredbox}[2]{%
  \colorbox{#1}{\ignorespaces#2\unskip}%
}

% support of optional color model argument
\newcommand\coloredboxIII\endcsname{}
\def\coloredboxIII#1#{%
  \@coloredboxIII{#1}%
}
\def\@coloredboxIII#1#2{%
  \def\next@{\mycoloredboxIII{#1}{#2}}%
  \collect@body\next@
}
\newcommand{\mycoloredboxIII}[3]{%
  \colorbox{#1}{#2}{\ignorespaces#3\unskip}%
}

\makeatother

\begin{document}
  Black text before
  \begin{coloredbox}{blue}
    Hello World
  \end{coloredbox}
  Black text after

  Black text before
  \begin{coloredboxII}{blue}
    Hello World
  \end{coloredboxII}
  Black text after

  Black text before
  \begin{coloredboxIII}[rgb]{0,0,1}
    Hello World
  \end{coloredboxIII}
  Black text after

\end{document}

Yours sincerely
Heiko <oberdiek@uni-freiburg.de>

```

## XXVIII.2 Tabular environments

This is based on the work by Herbert Breger in developing `tabmac.tex`.

The original `tabmac.tex` file was void of comments or any explanatory text other

than the above notice. The algorithm is Breger's. Peter Wilson have made some cosmetic changes to the original code and reimplemented some things so they are more LaTeX-like. All the commentary are from Peter Wilson, as are any mistake or errors.

However, Maïeul Rouquette has modified code in order to add new features of `eledmac` and `reledmac`.

### XXVIII.2.1 Disabling and restoring commands

`\l@dtabnoexpands` More no expansion for critical and familiar footnotes in tabular environment.

```

6131 \newcommand*{\l@dtabnoexpands}{%
6132   \let\rtab=0%
6133   \let\ctab=0%
6134   \let\ltab=0%
6135   \let\rtabtext=0%
6136   \let\ltabtext=0%
6137   \let\ctabtext=0%
6138   \let\edbeforetab=0%
6139   \let\edaftertab=0%
6140   \let\edatleft=0%
6141   \let\edatright=0%
6142   \let\edvertline=0%
6143   \let\edvertdots=0%
6144   \let\edrowfill=0%
6145 }
6146
6147 %

```

`\disable@familiarnotes` Macros to disable and restore familiar notes, to prevent them from printing multiple times in `edtabularx` and `edarrayx` environments.

`\restore@familiarnotes`

```

6148 \newcommand{\disable@familiarnotes}{%
6149   \unless\ifnofamiliar%
6150     \def\do##1{%
6151       \csletcs{footnote@@##1}{footnote##1}%
6152       \expandafter\renewcommand \csname footnote##1\endcsname[1]{%
6153         \protected@csxdef{thefnmark##1}{\csuse{thefootnote##1}}%
6154         \csuse{@footnotemark##1}%
6155       }%
6156     }%
6157     \dolistloop{\@series}%
6158   \fi%
6159 }%
6160 \newcommand{\restore@familiarnotes}{%
6161   \unless\ifnofamiliar%
6162     \def\do##1{%
6163       \csletcs{footnote##1}{footnote@@##1}%
6164     }%
6165     \dolistloop{\@series}%
6166   \fi%

```



```

6167 }%
6168
6169 %

```

`\disable@sidenotes` The same, for side notes.

`\restore@sidenotes`

```

6170 \newcommand{\disable@sidenotes}{%
6171   \let\@@ledrightnote\ledrightnote%
6172   \let\@@ledleftnote\ledleftnote%
6173   \let\@@ledsidenote\ledsidenote%
6174   \let\ledrightnote@gobble%
6175   \let\ledleftnote@gobble%
6176   \let\ledsidenote@gobble%
6177 }%
6178 \newcommand{\restore@sidenotes}{%
6179   \let\ledrightnote\@@ledrightnote%
6180   \let\ledleftnote\@@ledleftnote%
6181   \let\ledsidenote\@@ledsidenote%
6182 }%
6183 %

```

`\disable@notes` Disable/restore side and familiar notes.

`\restore@notes`

```

6184 \newcommand{\disable@notes}{%
6185   \disable@sidenotes%
6186   \disable@familiarnotes%
6187 }%
6188 \newcommand{\restore@notes}{%
6189   \restore@sidenotes%
6190   \restore@familiarnotes%
6191 }%
6192 %

```

`\EDTEXT` We need to be able to modify the `\edtext` macros and also restore their original definitions.

`\xedtext`

```

6193 \let\EDTEXT=\edtext
6194 \newcommand{\xedtext}[2]{\EDTEXT{#1}{#2}}
6195 %

```

`\EDLABEL` We need to be able to modify and restore the `\edlabel` macro.

`\xedlabel`

```

6196 \let\EDLABEL=\edlabel
6197 \newcommand*\xedlabel[1]{\EDLABEL{#1}}
6198 %

```

`\EDINDEX` Macros supporting modification and restoration of `\edindex`.

`\xedindex`

`\nulledindex`

```

6199 \let\EDINDEX=\edindex
6200 \newcommand{\xedindex}{\@bsphack%
6201   \ifnextchar [{\l@d@index}{\l@d@index[\jobname]}}
6202 \newcommand{\nulledindex}[2][\jobname]{\@bsphack\@esphack}
6203
6204 %

```

**\@line@num** Macro supporting restoration of \linenum.

```

6205 \let\@line@num=\linenum
6206 %

```

**\l@gobblearg** **\l@gobbleoptarg** [*arg*] {*arg*} replaces these two arguments (first is optional) by \relax.

```

6207 \newcommand*\l@gobbleoptarg}[2][\relax]%
6208
6209 %

```

**\Relax**<sub>10</sub> \let\Relax=\relax

**\NEXT**<sub>11</sub> \let\NEXT=\next

```

6212
6213 %

```

**\l@dmodforedtext** Modify and restore various macros for when \edtext is used.

**\l@drestoreforedtext**

```

6214 \newcommand{\l@dmodforedtext}{%
6215   \let\edtext\relax
6216   \def\do##1{\global\csletcs{##1footnote}{\l@gobbleoptarg}}%
6217   \dolistloop{\@series}%
6218   \let\edindex\nulledindex
6219   \let\linenum\@gobble}
6220 \newcommand{\l@drestoreforedtext}{%
6221   \def\do##1{\global\csletcs{##1footnote}{##1@footnote}}
6222   \dolistloop{\@series}%
6223   \let\edindex\xedindex}
6224 %

```

**\l@dnullfills** Nullify and restore some column fillers, etc.

**\l@drestorefills**

```

6225 \newcommand{\l@dnullfills}{%
6226   \def\edlabel##1{%
6227     \def\edrowfill##1##2##3{%
6228     }
6229   \newcommand{\l@drestorefills}{%
6230     \def\edrowfill##1##2##3{\@EDROWFILL@{##1}{##2}{##3}}%
6231   }
6232
6233 %

```

`\letsforverteilen` Gathers some lets and other code that is common to the `*verteilen*` macros.

```

6234 \newcommand{\letsforverteilen}{%
6235   \let\edtext\xedtext
6236   \let\edindex\xedindex
6237   \def\do##1{\global\csletcs{##1footnote}{##1@@footnote}}
6238   \dolistloop{\@series}%
6239   \let\linenum\@line@num
6240   \hilfe skip=\l@dcwidth%
6241   \advance\hilfe skip by -\wd\hilfe box
6242   \def\edlabel##1{\xedlabel{##1}}
6243 %
6244 %

```

`\disablel@dtabfeet` Declarations for using or using `\edtext` inside tabulars. The default at this point is for `\enablel@dtabfeet` `\edtext`.

```

6245 \newcommand\disablel@dtabfeet{\l@dmodforedtext}%
6246 \newcommand\enablel@dtabfeet{\l@drestoreforedtext}%
6247 %

```

### XXVIII.2.2 Counters, boxes and lengths

`\l@dampcount` `\l@dampcount` is a counter for the & column dividers and `\l@dcolcount` is a counter for the columns.

```

6248 \newcount\l@dampcount
6249 \l@dampcount=1\relax
6250 \newcount\l@dcolcount
6251 \l@dcolcount=0\relax
6252 %
6253 %

```

`\hilfe box` Some (temporary) helper items.

```

\hilfe skip
\hilfe box
\hilfe count
6254 \newbox\hilfe box
6255 \newskip\hilfe skip
6256 \newbox\Hilfe box
6257 \newcount\hilfe count
6258 %
6259 %

```

30 columns should be adequate (compared to the original 60). These are the column widths. (Originally these were German spelled numbers e.g., `\eins`, `\zwei`, etc).

```

6260 \newdimen\dcoli
6261 \newdimen\dcolii
6262 \newdimen\dcoliii
6263 \newdimen\dcoliv
6264 \newdimen\dcolv

```

```

6265 \newdimen\dc colvi
6266 \newdimen\dc colvii
6267 \newdimen\dc colviii
6268 \newdimen\dc colix
6269 \newdimen\dc colx
6270 \newdimen\dc colxi
6271 \newdimen\dc colxii
6272 \newdimen\dc colxiii
6273 \newdimen\dc colxiv
6274 \newdimen\dc colxv
6275 \newdimen\dc colxvi
6276 \newdimen\dc colxvii
6277 \newdimen\dc colxviii
6278 \newdimen\dc colxix
6279 \newdimen\dc colxx
6280 \newdimen\dc colxxi
6281 \newdimen\dc colxxii
6282 \newdimen\dc colxxiii
6283 \newdimen\dc colxxiv
6284 \newdimen\dc colxxv
6285 \newdimen\dc colxxvi
6286 \newdimen\dc colxxvii
6287 \newdimen\dc colxxviii
6288 \newdimen\dc colxxix
6289 \newdimen\dc colxxx
6290 \newdimen\dc colerr % added for error handling
6291
6292 %

```

**\l@dc colwidth** This is a cunning way of storing the columnwidths indexed by the column number \l@dc colcount, like an array. (was \Dimenzuordnung)

```

6293 \newcommand{\l@dc colwidth}{\ifcase \the\l@dc colcount \dc oli %???
6294 \or \dc oli \or \dc olii \or \dc oliii
6295 \or \dc oliv \or \dc olv \or \dc olvi
6296 \or \dc olvii \or \dc olviii \or \dc olvix \or \dc olx
6297 \or \dc olxi \or \dc olxii \or \dc olxiii
6298 \or \dc olxiv \or \dc olxv \or \dc olxvi
6299 \or \dc olxvii \or \dc olxviii \or \dc olxix \or \dc olxx
6300 \or \dc olxxi \or \dc olxxii \or \dc olxxiii
6301 \or \dc olxxiv \or \dc olxxv \or \dc olxxvi
6302 \or \dc olxxvii \or \dc olxxviii \or \dc olxxix \or \dc olxxx
6303 \else \dc olerr \fi}
6304
6305 %

```

**\step1@dc colcount** This increments the column counter, and issues an error message if it is too large.

```

6306 \newcommand*{\step1@dc colcount}{\advance\l@dc colcount\@ne
6307 \ifnum\l@dc colcount>30\relax

```

```

6308 \led@err@TooManyColumns
6309 \fi}
6310
6311 %

```

**\l@setmaxcolwidth** Sets the column width to the maximum value seen so far.

```

6312 \newcommand{\l@setmaxcolwidth}{%
6313 \ifdim\l@dcwidth < \wd\hilfsbox
6314 \l@dcwidth = \wd\hilfsbox
6315 \else \relax \fi}
6316
6317 %

```

**\measurecell** Measure (recursively) the width required for a math cell.

```

6318 \def\measurecell #1{%
6319 \ifx #1\ \ifnum\l@dcwidth=0\let\NEXT\relax%
6320 \else\l@dcheckcols%
6321 \l@dcwidth=0%
6322 \let\NEXT\measurecell%
6323 \fi%
6324 \else\setbox\hilfsbox=\hbox{$\displaystyle{#1}$}%
6325 \step\l@dcwidth%
6326 \l@setmaxcolwidth%
6327 \let\NEXT\measurecell%
6328 \fi\NEXT}
6329
6330 %

```

**\measuretextcell** Measure (recursively) the width required for a text cell.

```

6331 \def\measuretextcell #1{%
6332 \ifx #1\ \ifnum\l@dcwidth=0\let\NEXT\relax%
6333 \else\l@dcheckcols%
6334 \l@dcwidth=0%
6335 \let\NEXT\measuretextcell%
6336 \fi%
6337 \else\setbox\hilfsbox=\hbox{#1}%
6338 \step\l@dcwidth%
6339 \l@setmaxcolwidth%
6340 \let\NEXT\measuretextcell%
6341 \fi\NEXT}
6342
6343 %

```

**\measuremrow** Measure (recursively) the width required for a math row.

```

6344 \def\measuremrow #1{%
6345 \ifx #1\let\NEXT\relax%

```

```

6346 \else\measuremcell #1&\\&\\&%
6347 \let\NEXT\measuremrow%
6348 \fi\NEXT}
6349 %

```

**\measuretrow** Measure (recursively) the width required for a text row.

```

6350 \def\measuretrow #1\\{%
6351 \ifx #1&\let\NEXT\relax%
6352 \else\measuretcell #1&\\&\\&%
6353 \let\NEXT\measuretrow%
6354 \fi\NEXT}
6355
6356 %

```

**\edtabcolsep** The length \edtabcolsep controls the distance between columns.

```

6357 \newskip\edtabcolsep
6358 \global\edtabcolsep=10pt
6359
6360 %

```

```

\variab61 \newcommand{\variab}{\relax}
6362
6363 %

```

**\l@dcheckcols** Check that the number of columns is consistent.

```

6364 \newcommand*{\l@dcheckcols}{%
6365 \ifnum\l@dcolcount=1\relax
6366 \else
6367 \ifnum\l@dampcount=1\relax
6368 \else
6369 \ifnum\l@dcolcount=\l@dampcount\relax
6370 \else
6371 \l@d@err@UnequalColumns
6372 \fi
6373 \fi
6374 \l@dampcount=\l@dcolcount
6375 \fi}
6376
6377 %

```

**\edfilldimen** A length.

```

6378 \newdimen\edfilldimen
6379 \edfilldimen=0pt
6380
6381 %

```

`\c@addcolcount` A counter to hold the number of a column. We use a roman number so that we can grab the column dimension from `\dcol`. We do not use the `\roman`  $\TeX$  command, because some packages, like `babel` can override it in some specific cases (Greek, for example).

`\theadcolcount`

```
6382 \newcounter{addcolcount}
6383 \renewcommand{\theadcolcount}{\romannumeral \c@addcolcount}
6384 %
```

### XXVIII.2.3 Tabular typesetting

`\setmcellright` Typeset (recursively) cells of display math right justified.

```
6385 \def\setmcellright #1{\def\edlabel##1{}%
6386 \let\edindex\nulledindex
6387 \ifx #1\ \ifnum\l@dcolcount=0%\removelastskip
6388 \let\Next\relax%
6389 \else\l@dcolcount=0%
6390 \let\Next=\setmcellright%
6391 \fi%
6392 \else%
6393 \disablel@dtabfeet%
6394 \step1@dcolcount%
6395 \disable@notes%
6396 \setbox\hilfsbox=\hbox{$\displaystyle{#1}$}%
6397 \restore@notes%
6398 \letsforverteilen%
6399 \hskip\hilfsskip$\displaystyle{#1}$%
6400 \hskip\edtabcolsep%
6401 \let\Next=\setmcellright%
6402 \fi\Next}
6403 %
6404 %
```

`\settcellright` Typeset (recursively) cells of text right justified.

```
6405 \def\settcellright #1{\def\edlabel##1{}%
6406 \let\edindex\nulledindex
6407 \ifx #1\ \ifnum\l@dcolcount=0%\removelastskip
6408 \let\Next\relax%
6409 \else\l@dcolcount=0%
6410 \let\Next=\settcellright%
6411 \fi%
6412 \else%
6413 \disablel@dtabfeet%
6414 \step1@dcolcount%
6415 \disable@notes%
6416 \setbox\hilfsbox=\hbox{#1}%
6417 \restore@notes%
6418 \letsforverteilen%
6419 \hskip\hilfsskip#1%
```

```

6420         \hskip\edtabcolsep%
6421         \let\Next=\settccllright%
6422     \fi\Next}
6423 %

```

**\setmcellleft** Typeset (recursively) cells of display math left justified.

```

6424 \def\setmcellleft #1&{\def\edlabel##1{}%
6425     \let\edindex\nulledindex
6426     \ifx #1\\ \ifnum\l@dc@colcount=0 \let\Next\relax%
6427         \else\l@dc@colcount=0%
6428             \let\Next=\setmcellleft%
6429         \fi%
6430     \else \disablel@dtabfeet%
6431         \stepl@dc@colcount%
6432         \disable@notes%
6433         \setbox\hilfsbox=\hbox{$\displaystyle{#1}$}%
6434         \restore@notes%
6435         \letsforverteilen%
6436         $\displaystyle{#1}$\hskip\hilfsskip\hskip\edtabcolsep%
6437         \let\Next=\setmcellleft%
6438     \fi\Next}
6439
6440 %

```

**\settcclleft** Typeset (recursively) cells of text left justified.

```

6441 \def\settcclleft #1&{\def\edlabel##1{}%
6442     \let\edindex\nulledindex
6443     \ifx #1\\ \ifnum\l@dc@colcount=0 \let\Next\relax%
6444         \else\l@dc@colcount=0%
6445             \let\Next=\settcclleft%
6446         \fi%
6447     \else \disablel@dtabfeet%
6448         \stepl@dc@colcount%
6449         \disable@notes%
6450         \setbox\hilfsbox=\hbox{#1}%
6451         \restore@notes%
6452         \letsforverteilen%
6453         #1\hskip\hilfsskip\hskip\edtabcolsep%
6454         \let\Next=\settcclleft%
6455     \fi\Next}
6456 %

```

**\setmcellcenter** Typeset (recursively) cells of display math centered.

```

6457 \def\setmcellcenter #1&{\def\edlabel##1{}%
6458     \let\edindex\nulledindex
6459     \ifx #1\\ \ifnum\l@dc@colcount=0\let\Next\relax%
6460         \else\l@dc@colcount=0%

```



```

6461         \let\Next=\setmcellcenter%
6462     \fi%
6463 \else    \disablel@dtabfeet%
6464         \stepl@dcolcount%
6465         \disable@notes%
6466         \setbox\hilfsbox=\hbox{$\displaystyle{#1}$}%
6467         \restore@notes%
6468         \letsforverteilen%
6469         \hskip 0.5\hilfsskip$\displaystyle{#1}$\hskip0.5\hilfsskip%
6470         \hskip\edtabcolsep%
6471         \let\Next=\setmcellcenter%
6472 \fi\Next}
6473
6474 %

```

**\settcellcenter** Typeset (recursively) cells of text centered.

```

6475 \def\settcellcenter #1&{\def\edlabel##1{%
6476     \let\edindex\nulledindex
6477     \ifx #1\\ \ifnum\l@dcolcount=0 \let\Next\relax%
6478         \else\l@dcolcount=0%
6479         \let\Next=\settcellcenter%
6480     \fi%
6481 \else    \disablel@dtabfeet%
6482         \stepl@dcolcount%
6483         \disable@notes%
6484         \setbox\hilfsbox=\hbox{#1}%
6485         \restore@notes%
6486         \letsforverteilen%
6487         \hskip 0.5\hilfsskip #1\hskip 0.5\hilfsskip%
6488         \hskip\edtabcolsep%
6489         \let\Next=\settcellcenter%
6490 \fi\Next}
6491
6492 %

```

**\NEXT** <sub>93</sub> \let\NEXT=\relax

```

6494
6495 %

```

**\setmrowright** Typeset (recursively) rows of right justified math.

```

6496 \def\setmrowright #1\\{%
6497     \ifx #1& \let\NEXT\relax
6498     \else \centerline{\setmcellright #1&\\&\\&}
6499     \let\NEXT=\setmrowright
6500 \fi\NEXT}
6501 %

```

`\settroright` Typeset (recursively) rows of right justified text.

```

6502 \def\settroright #1\\{%
6503     \ifx #1& \let\NEXT\relax
6504     \else \centerline{\settcclright #1&\\&\\&}
6505         \let\NEXT=\settroright
6506     \fi\NEXT}
6507
6508 %

```

`\setmrowleft` Typeset (recursively) rows of left justified math.

```

6509 \def\setmrowleft #1\\{%
6510     \ifx #1& \let\NEXT\relax
6511     \else \centerline{\setmcclleft #1&\\&\\&}
6512         \let\NEXT=\setmrowleft
6513     \fi\NEXT}
6514 %

```

`\settrorleft` Typeset (recursively) rows of left justified text.

```

6515 \def\settrorleft #1\\{%
6516     \ifx #1& \let\NEXT\relax
6517     \else \centerline{\settcclleft #1&\\&\\&}
6518         \let\NEXT=\settrorleft
6519     \fi\NEXT}
6520
6521 %

```

`\setmrowcenter` Typeset (recursively) rows of centered math.

```

6522 \def\setmrowcenter #1\\{%
6523     \ifx #1& \let\NEXT\relax%
6524     \else \centerline{\setmcclcenter #1&\\&\\&}
6525         \let\NEXT=\setmrowcenter
6526     \fi\NEXT}
6527 %

```

`\settrorcenter` Typeset (recursively) rows of centered text.

```

6528 \def\settrorcenter #1\\{%
6529     \ifx #1& \let\NEXT\relax
6530     \else \centerline{\settcclcenter #1&\\&\\&}
6531         \let\NEXT=\settrorcenter
6532     \fi\NEXT}
6533
6534 %

```

```

\newcommand{\nullsetzen}{%
  \step1@dcolcount%
  \l@dcolwidth=0pt%
  \ifnum\l@dcolcount=30\let\NEXT\relax%
    \l@dcolcount=0\relax
  \else\let\NEXT\nullsetzen%
  \fi\NEXT}
%
```

**\edatleft** `\edatleft[ $\langle math \rangle$ ]{ $\langle symbol \rangle$ }{ $\langle len \rangle$ }`. Left  $\langle symbol \rangle$ ,  $2\langle len \rangle$  high with prepended  $\langle math \rangle$  vertically centered.

```

\newcommand{\edatleft}[3][\@empty]{%
  \ifx#1\@empty
    \vbox to 10pt{\vss\hbox{$\left#2\vrule width0pt height #3
      depth 0pt \right. $\hss}\vfil}
  \else
    \vbox to 4pt{\vss\hbox{#1\left#2\vrule width0pt height #3
      depth 0pt \right. $\vfil}
  \fi}
%
```

**\edatright** `\edatright[ $\langle math \rangle$ ]{ $\langle symbol \rangle$ }{ $\langle len \rangle$ }`. Right  $\langle symbol \rangle$ ,  $2\langle len \rangle$  high with appended  $\langle math \rangle$  vertically centered.

```

\newcommand{\edatright}[3][\@empty]{%
  \ifx#1\@empty
    \vbox to 10pt{\vss\hbox{$\left.\vrule width0pt height #3
      depth 0pt \right#2 $\hss}\vfil}
  \else
    \vbox to 4pt{\vss\hbox{$\left.\vrule width0pt height #3
      depth 0pt \right#2 #1 $\vfil}
  \fi}
%
```

**\edvertline** `\edvertline{ $\langle len \rangle$ }` vertical line  $\langle len \rangle$  high.

```

\newcommand{\edvertline}[1]{\vbox to 8pt{\vss\hbox{\vrule height #1}\vfil}}
%
```

**\edvertdots** `\edvertdots{ $\langle len \rangle$ }` vertical dotted line  $\langle len \rangle$  high.

```

\newcommand{\edvertdots}[1]{\vbox to 1pt{\vss\vbox to #1%
  {\cleaders\hbox{$\math\hbox{.}\vbox to 0.5em{ }\vfil}}}}
%
```

**\l@dtabaddcols** `\l@dtabaddcols{<startcol>}{<endcol>}` adds the widths of the columns `<startcol>` through `<endcol>` to `\edfilldimen`. It is a  $\TeX$  style reimplementation of the original `\@add@`.

```

6570 \newcommand{\l@dtabaddcols}[2]{%
6571   \l@dcheckstartend{#1}{#2}%
6572   \ifl@dstartendok
6573   \setcounter{addcolcount}{#1}%
6574   \@whilenum \value{addcolcount}<#2\relax \do
6575   {\advance\edfilldimen by \the\csname dcol\theaddcolcount\endcsname
6576    \advance\edfilldimen by \edtabcolsep
6577    \stepcounter{addcolcount}}%
6578   \advance\edfilldimen by \the\csname dcol\theaddcolcount\endcsname
6579   \fi
6580 }
6581
6582 %

```

**\ifl@dstartendok** `\l@dcheckstartend{<startcol>}{<endcol>}` checks that the values of `<startcol>` and `<endcol>` are sensible. If they are then `\ifl@dstartendok` is set TRUE, otherwise it is set FALSE.

```

6583 \newif\ifl@dstartendok
6584 \newcommand{\l@dcheckstartend}[2]{%
6585   \l@dstartendoktrue
6586   \ifnum #1<\@ne
6587     \l@dstartendokfalse
6588     \led@err@LowStartColumn
6589   \fi
6590   \ifnum #2>30\relax
6591     \l@dstartendokfalse
6592     \led@err@HighEndColumn
6593   \fi
6594   \ifnum #1>#2\relax
6595     \l@dstartendokfalse
6596     \led@err@ReverseColumns
6597   \fi
6598 }
6599
6600 %

```

**\edrowfill** `\edrowfill{<startcol>}{<endcol>}` fill fills columns `<startcol>` to `<endcol>` inclusive with `<fill>` (e.g. `\hrulefill`, `\upbracefill`). This is a  $\TeX$  style reimplementation and generalization of the original `\waklam`, `\Waklam`, `\waklamec`, `\wastricht` and `\wapunktel` macros.

```

6601 \newcommand*{\edrowfill}[3]{%
6602   \l@dtabaddcols{#1}{#2}%
6603   \hb@xt@ \the\l@dcolwidth{\hb@xt@ \the\edfilldimen{#3}\hss}}
6604 \let\@edrowfill@=\edrowfill
6605 \def\@EDROWFILL@#1#2#3{\@edrowfill@{#1}{#2}{#3}}

```

```
6606
6607 %
```

**\edbeforetab**     The macro `\edbeforetab{⟨text⟩}{⟨math⟩}` puts `⟨text⟩` at the left margin before array cell entry `⟨math⟩`. Conversely, the macro `\edaftertab{⟨math⟩}{⟨text⟩}` puts `⟨text⟩` at the right margin after array cell entry `⟨math⟩`. `\edbeforetab` should be in the first column and `\edaftertab` in the last column. The following macros support these.

**\leftltab**     `\leftltab{⟨text⟩}` for `\edbeforetab` in `\ltab`.

```
6608 \newcommand{\leftltab}[1]{%
6609   \hb@xt@ \z@{\vbox{\edtabindent%
6610     \moveleft\Hilfsskip\hbox{\ #1}}\hss}}
6611
6612 %
```

**\leftrtab**     `\leftrtab{⟨text⟩}{⟨math⟩}` for `\edbeforetab` in `\rtab`.

```
6613 \newcommand{\leftrtab}[2]{%
6614   #2\hb@xt@ \z@{\vbox{\edtabindent%
6615     \advance\Hilfsskip by\dcoli%
6616     \moveleft\Hilfsskip\hbox{\ #1}}\hss}}
6617
6618 %
```

**\leftctab**     `\leftctab{⟨text⟩}{⟨math⟩}` for `\edbeforetab` in `\ctab`.

```
6619 \newcommand{\leftctab}[2]{%
6620   \hb@xt@ \z@{\vbox{\edtabindent\l@dcolcount=\l@dampcount%
6621     \advance\Hilfsskip by 0.5\dcoli%
6622     \setbox\hilfsbox=\hbox{\def\edlabel##1}%
6623     \disablel@dtabfeet$\displaystyle{#2}$}%
6624     \advance\Hilfsskip by -0.5\wd\hilfsbox%
6625     \moveleft\Hilfsskip\hbox{\ #1}}\hss}%
6626   #2}
6627
6628 %
```

**\rightctab**     `\rightctab{⟨math⟩}{⟨text⟩}` for `\edaftertab` in `\ctab`.

```
6629 \newcommand{\rightctab}[2]{%
6630   \setbox\hilfsbox=\hbox{\def\edlabel##1}%
6631   \disablel@dtabfeet#2}\l@dampcount=\l@dcolcount%
6632   #1\hb@xt@ \z@{\vbox{\edtabindent\l@dcolcount=\l@dampcount%
6633     \advance\Hilfsskip by 0.5\l@dcolwidth%
6634     \advance\Hilfsskip by -\wd\hilfsbox%
6635     \setbox\hilfsbox=\hbox{\def\edlabel##1}%
6636     \disablel@dtabfeet$\displaystyle{#1}$}%
6637     \advance\Hilfsskip by -0.5\wd\hilfsbox%
```

```

6638 \advance\Hilfsskip by \edtabcolsep%
6639 \moveright\Hilfsskip\hbox{ #2}}\hss}%
6640 }
6641
6642 %

```

**\rightltab** `\rightltab{<math>}<{<text>}` for `\edaftertab` in `\ltab`.

```

6643 \newcommand{\rightltab}[2]{%
6644 \setbox\hilfsbox=\hbox{\def\edlabel##1{%
6645 \disablel@dtabfeet#2}\l@dampcount=\l@dcolcount%
6646 #1\hb@xt@{\z@{\vbox{\edtabindent\l@dcolcount=\l@dampcount%
6647 \advance\Hilfsskip by\l@dcolwidth%
6648 \advance\Hilfsskip by-\wd\hilfsbox%
6649 \setbox\hilfsbox=\hbox{\def\edlabel##1{%
6650 \disablel@dtabfeet$\displaystyle{#1}$}%
6651 \advance\Hilfsskip by-\wd\hilfsbox%
6652 \advance\Hilfsskip by\edtabcolsep%
6653 \moveright\Hilfsskip\hbox{ #2}}\hss}%
6654 }
6655
6656 %

```

**\rightrtab** `\rightrtab{<math>}<{<text>}` for `\edaftertab` in `\rtab`.

```

6657 \newcommand{\rightrtab}[2]{%
6658 \setbox\hilfsbox=\hbox{\def\edlabel##1{%
6659 \disablel@dtabfeet#2}%
6660 #1\hb@xt@{\z@{\vbox{\edtabindent%
6661 \advance\Hilfsskip by-\wd\hilfsbox%
6662 \advance\Hilfsskip by\edtabcolsep%
6663 \moveright\Hilfsskip\hbox{ #2}}\hss}%
6664 }
6665
6666 %

```

**\rtab** `\rtab{<body>}` typesets `<body>` as an array with the entries right justified.

**\edbeforetab** The process is first to measure the `<body>` to get the column widths, and then in a  
**\edaftertab** second pass to typeset the body.

```

6667 \newcommand{\rtab}[1]{%
6668 \l@dnnullfills
6669 \def\edbeforetab##1##2{\leftltab{##1}{##2}}%
6670 \def\edaftertab##1##2{\rightltab{##1}{##2}}%
6671 \measurebody{#1}%
6672 \l@drestorefills
6673 \variab
6674 \setmrowright #1\\&\\%
6675 \enablel@dtabfeet}
6676
6677 %

```

`\measurebody` `\measurebody{<body>}` measures the array `<body>`.

```

6678 \newcommand{\measurebody}[1]{%
6679   \disablel@dtabfeet%
6680   \l@dc@colcount=0%
6681   \nullsetzen%
6682   \l@dc@colcount=0
6683   \measuremrow #1\\&\\%
6684   \global\l@dampcount=1}
6685 %
6686 %

```

`\rtabtext` `\rtabtext{<body>}` typesets `<body>` as a tabular with the entries right justified.

```

6687 \newcommand{\rtabtext}[1]{%
6688   \l@dnullfills
6689   \measuretbody{#1}%
6690   \l@drestorefills
6691   \variab
6692   \setthrowright #1\\&\\%
6693   \enablel@dtabfeet}
6694 %
6695 %

```

`\measuretbody` `\measuretbody{<body>}` measures the tabular `<body>`.

```

6696 \newcommand{\measuretbody}[1]{%
6697   \disable@notes%
6698   \disablel@dtabfeet%
6699   \l@dc@colcount=0%
6700   \nullsetzen%
6701   \l@dc@colcount=0
6702   \measuretbody #1\\&\\%
6703   \restore@notes%
6704   \global\l@dampcount=1}
6705 %
6706 %

```

`\ltab` Array with entries left justified.

```

\edbeforetab \newcommand{\ltab}[1]{%
\edaftertab  \l@dnullfills
6707           \def\edbeforetab##1##2{\leftltab{##1}{##2}}%
6708           \def\edaftertab##1##2{\rightltab{##1}{##2}}%
6709           \measuretbody{#1}%
6710           \l@drestorefills
6711           \variab
6712           \setmrowleft #1\\&\\%
6713           \enablel@dtabfeet}
6714 %
6715 %
6716 %
6717 %

```

**\ltabtext** Tabular with entries left justified.

```

6718 \newcommand{\ltabtext}[1]{%
6719   \l@dnnullfills
6720   \measuretbody{#1}%
6721   \l@drestorefills
6722   \variab
6723   \settrorleft #1\&\%
6724   \enablel@dtabfeet}
6725
6726 %

```

**\ctab** Array with centered entries.

```

\edbeforetab
\edaftertab
6727 \newcommand{\ctab}[1]{%
6728   \l@dnnullfills
6729   \def\edbeforetab##1##2{\leftctab{##1}{##2}}%
6730   \def\edaftertab##1##2{\rightctab{##1}{##2}}%
6731   \measuretbody{#1}%
6732   \l@drestorefills
6733   \variab
6734   \setmrowcenter #1\&\%
6735   \enablel@dtabfeet}
6736
6737 %

```

**\ctabtext** Tabular with entries centered.

```

6738 \newcommand{\ctabtext}[1]{%
6739   \l@dnnullfills
6740   \measuretbody{#1}%
6741   \l@drestorefills
6742   \variab
6743   \settrorcenter #1\&\%
6744   \enablel@dtabfeet}
6745
6746 %

```

```

\spreadtext
47 \newcommand{\spreadtext}[1]{%\l@dcolcount=\l@dampcount%
6748   \hb@xt@ \the\l@dcolwidth{\hbox{#1}\hss}}
6749 %

```

```

\spreadmath
50 \newcommand{\spreadmath}[1]{%
6751   \hb@xt@ \the\l@dcolwidth{\hbox{$\displaystyle{#1}$}\hss}}
6752
6753 %

```

**\HILFSskip** More helpers.

**\Hilfsskip**



```

6754 \newskip\HILFSskip
6755 \newskip\Hilfsskip
6756
6757 %

```

```

\EDTABINDENT \newcommand{\EDTABINDENT}{%
6758
6759   \ifnum\l@dcolcount=30\let\NEXT\relax\l@dcolcount=0%
6760   \else\step1@dcolcount%
6761     \advance\Hilfsskip by\l@dcolwidth%
6762     \ifdim\l@dcolwidth=0pt\advance\hilfscount\@ne
6763     \else\advance\Hilfsskip by \the\hilfscount\edtabcolsep%
6764     \hilfscount=1\fi%
6765     \let\NEXT=\EDTABINDENT%
6766   \fi\NEXT}%
6767 %

```

`\edtabindent` (was `\tabindent`)

```

6768 \newcommand{\edtabindent}{%
6769   \l@dcolcount=0\relax
6770   \Hilfsskip=0pt%
6771   \hilfscount=1\relax
6772   \EDTABINDENT%
6773   \hilfsskip=\hsize%
6774   \advance\hilfsskip -\Hilfsskip%
6775   \Hilfsskip=0.5\hilfsskip%
6776 }%
6777
6778 %

```

`\EDTAB` (was `\TAB`)

```

6779 \def\EDTAB #1|#2|{%
6780   \setbox\tabhilfbox=\hbox{$\displaystyle{#1}$}%
6781   \setbox\tabHilfbox=\hbox{$\displaystyle{#2}$}%
6782   \advance\tabelskip -\wd\tabhilfbox%
6783   \advance\tabelskip -\wd\tabHilfbox%
6784   \unhbox\tabhilfbox\hskip\tabelskip%
6785   \unhbox\tabHilfbox}%
6786
6787 %

```

`\EDTABtext` (was `\TABtext`)

```

6788 \def\EDTABtext #1|#2|{%
6789   \setbox\tabhilfbox=\hbox{#1}%
6790   \setbox\tabHilfbox=\hbox{#2}%
6791   \advance\tabelskip -\wd\tabhilfbox%
6792   \advance\tabelskip -\wd\tabHilfbox%

```

```

6793 \unhbox\tabhilfbox\hskip\tabelskip%
6794 \unhbox\tabHilfbox}%
6795 %

```

`\tabhilfbox` Further helpers.

```

\tabHilfbox
6796 \newbox\tabhilfbox
6797 \newbox\tabHilfbox
6798
6799 %

```

## XXVIII.2.4 Environments

`edarrayl edarrayc edarrayr` The ‘environment’ forms for `\ltab`, `\ctab` and `\rtab`.

```

6800 \newenvironment{edarrayl}{\l@collect@body\ltab}{\}
6801 \newenvironment{edarrayc}{\l@collect@body\ctab}{\}
6802 \newenvironment{edarrayr}{\l@collect@body\rtab}{\}
6803
6804 %

```

`edtabularl edtabularc edtabularr` The ‘environment’ forms for `\ltabtext`, `\ctabtext` and `\rtabtext`.

```

6805 \newenvironment{edtabularl}{\l@collect@body\ltabtext}{\}
6806 \newenvironment{edtabularc}{\l@collect@body\ctabtext}{\}
6807 \newenvironment{edtabularr}{\l@collect@body\rtabtext}{\}
6808
6809 %

```

## XXIX Quotation's commands

`\initnumbering@quote` This macro, called at the beginning of any numbered section, locally redefines the quotation and quote environments, in order to allow their use inside of numbered sections.

```

\quotation \initnumbering@quote defines quotation environment.
\endquotation
\quote
\endquote
6810 \newcommand{\initnumbering@quote}{
6811 \ifnoquotation@else
6812 \renewcommand{\quotation}{\par\leavevmode%
6813 \parindent=1.5em%
6814 \skipnumbering%
6815 \ifautopar%
6816 \vskip-\parskip%
6817 \else%
6818 \vskip\topsep%
6819 \fi%
6820 \global\leftskip=\leftmargin%

```

```

6821         \global\rightskip=\leftmargin%
6822     }
6823 \renewcommand{\endquotation}{\par%
6824     \global\leftskip=0pt%
6825     \global\rightskip=0pt%
6826     \leavevmode%
6827     \skipnumbering%
6828     \ifautopar%
6829         \vskip-\parskip%
6830     \else%
6831         \vskip\topsep%
6832     \fi%
6833 }
6834 \renewcommand{\quote}{\par\leavevmode%
6835     \parindent=0pt%
6836     \skipnumbering%
6837     \ifautopar%
6838         \vskip-\parskip%
6839     \else%
6840         \vskip\topsep%
6841     \fi%
6842     \global\leftskip=\leftmargin%
6843     \global\rightskip=\leftmargin%
6844 }
6845 \renewcommand{\endquote}{\par%
6846     \global\leftskip=0pt%
6847     \global\rightskip=0pt%
6848     \leavevmode%
6849     \skipnumbering%
6850     \ifautopar%
6851         \vskip-\parskip%
6852     \else%
6853         \vskip\topsep%
6854     \fi%
6855 }
6856 \fi
6857 }
6858 %

```

## XXX Section's title commands

### XXX.1 Commands to disable some feature

`\ledsectnotoc` The `\ledsectnotoc` only disables the `\addcontentsline` macro.

```

6859 \newcommand{\ledsectnotoc}{\let\addcontentsline\@gobblethree}
6860 %

```

`\ledsectnomark` The `\ledsectnomark` only disables the `\chaptermark`, `\sectionmark` and `\subsectionmark` macros.

```

6861 \newcommand{\ledsectnomark}{%
6862   \let\chaptermark@gobble%
6863   \let\sectionmark@gobble%
6864   \let\subsectionmark@gobble%
6865 }
6866 %

```

## XXX.2 General overview

The system of `\eledxxxx` commands to section text work like this:

1. When one of these commands is called, `reledmac` writes to an auxiliary files:
  - The section level.
  - The section title.
  - The side (when `eledpar` is used).
  - The `pstart` where the command is called.
  - If we have starred version or not.
2. `reledmac` adds the title of the section to `pstart`, as normal content. This is to enable critical notes.
3. When  $\text{\TeX}$  is run a other time, this file is read. That:
  - Adds the `pstart` number to a list of `pstarts` where a sectioning command is used.
  - Defines a command, the name of which contains the `pstart` number, and which calls the normal  $\text{\TeX}$  sectioning command.
4. This last command is called when the `pstart` is effectively printed.

## XXX.3 `\beforeeledchapter` command

We do not define commands for `\eledsection` and related if the `noeledsec` option is loaded. We use `etoolbox` tests and not the `\ifxxx...else...\fi` structure to prevent problem of expansions with command after the `\ifxxx` which contains `\fi`. As we patch command inside this test, we need to change the category code of `#` character *before* `\notbool` statement, because the second argument is read with the standard catcode (read *The TeXbook* to understand when the catcode's change has effect).

```

6867 \catcode`\#=12
6868 \notbool{@noeled@sec}{%
6869 %

```

`\beforeeledchapter` For technical reasons, not yet solved, page-breaking before chapters can't be made automatically by `eledmac`. Users have to use `\beforeeledchapter`.

```

6870 \ifl@dmemoir
6871   \newcommand\beforeeledchapter{%
6872     \clearforchapter%
6873   }
6874   \else
6875     \newcommand\beforeeledchapter{%
6876       \if@openright%
6877         \cleardoublepage%
6878       \else%
6879         \clearpage%
6880       \fi%
6881     }
6882   \fi
6883   %

```

## XXX.4 Auxiliary commands

`\if@eled@sectioning` The boolean `\if@eled@sectioning` is set to true when a sectioning command is called by a `\eledxxx` command, and set to false after. It is used to enable/disable line number printing.

```

6884 \newif\if@eled@sectioning
6885 %

```

`\print@leftmargin@eledsection` and `\print@rightmargin@eledsection` are added by `reledmac` inside the code of sectioning command, in order to affix lines numbers. They include tests for RTL languages.

```

6886 \def\print@rightmargin@eledsection{%
6887   \if@eled@sectioning%
6888     \begingroup%
6889     \if@RTL%
6890       \let\llap\rlap%
6891       \let\leftlinenum\rightlinenum%
6892       \let\leftlinenumR\rightlinenumR%
6893       \let\l@drd@ta\l@dld@ta%
6894       \let\l@drsn@te\l@dlsn@te%
6895     \fi%
6896     \hfill\l@drd@ta \csuse{LR}{\l@drsn@te}%
6897   \endgroup%
6898   \fi%
6899 }%
6900
6901 \def\print@leftmargin@eledsection{%
6902   \if@eled@sectioning%
6903     \leavevmode%
6904     \begingroup%

```

```

6905 \if@RTL%
6906     \let\rlap\llap%
6907     \let\rightlinenum\leftlinenum%
6908     \let\rightlinenumR\leftlinenumR%
6909     \let\l@dld@ta\l@dld@ta%
6910     \let\l@dlsn@te\l@dlsn@te%
6911 \fi%
6912 \l@dld@ta\csuse{LR}{\l@dlsn@te}%
6913 \endgroup%
6914 \fi%
6915 }%
6916
6917 %

```

### XXX.5 Patching standard commands

`\chapter` We have to patch  $\LaTeX$ , book and memoir sectioning commands in order to:

- `\M@sect`
  - Disable `\edtext` inside.
- `\@mem@old@ssect`
  - Disable page breaking (for `\chapter`).
- `\@makechapterhead`
  - Add line numbers and sidenotes.
- `\@makeschapterhead`

`\@sect`  
`\@ssect`

Unfortunately, Maïeul Rouquette was not able to try if memoir is loaded. That is why `eledmac` tries to define for both standard class and memoir class.

```

6918 \AtBeginDocument{%
6919 \patchcmd{\chapter}{\clearforchapter}{%
6920 \if@eled@sectioning\else%
6921 \ifl@printingpages\else%
6922 \clearforchapter%
6923 \fi%
6924 \fi%
6925 }
6926 {}
6927 {}
6928
6929
6930 \pretocmd{\M@sect}
6931 { \let\old@edtext=\edtext%
6932 \let\edtext=\dummy@edtext@showlemma%
6933 }
6934 {}
6935 {}
6936
6937 \apptocmd{\M@sect}
6938 { \let\edtext=\old@edtext}
6939 {}
6940 {}

```

```

6941 \patchcmd{\M@sect}
6942 { #9}
6943 { #9%
6944 \print@rightmargin@eledsection%
6945 }
6946 {}
6947 {}
6948 {}
6949
6950 \patchcmd{\M@sect}
6951 {\hskip #3\relax}
6952 {\hskip #3\relax%
6953 \print@leftmargin@eledsection%
6954 }
6955 {}
6956 {}
6957
6958 \patchcmd{\@mem@old@ssect}
6959 {#5}
6960 {#5%
6961 \print@leftmargin@eledsection%
6962 }
6963 {}
6964 {}
6965
6966 \patchcmd{\@mem@old@ssect}
6967 {\hskip #1}
6968 {\hskip #1%
6969 \print@rightmargin@eledsection%
6970 }
6971 {}
6972 {}
6973
6974 \patchcmd{\chapter}{\if@openright\cleardoublepage\else\clearpage\fi}{%
6975 \if@eled@sectioning\else%
6976 \ifl@dprintingpages\else%
6977 \if@openright\cleardoublepage\else\clearpage\fi%No clearpage inside a
\Pages: will keep critical notes from printing on the title page. Here for
classical classes
\fi%
\fi%
\fi%
}%
6980 {}%
6981 {}%
6982 {}%
6983
6984 \patchcmd{\scr@startchapter}{\if@openright\cleardoublepage\else\clearpage\
fi}{%
6985 \if@eled@sectioning\else%
6986 \ifl@dprintingpages\else%
6987 \if@openright\cleardoublepage\else\clearpage\fi%No clearpage inside a

```

```

\Pages: will keep critical notes from printing on the title page. Here for
scrbook.
6988   \fi%
6989   \fi%
6990   }
6991   {}
6992   {}
6993
6994 \patchcmd{\@makechapterhead}
6995   {#1}
6996   {\print@leftmargin@eledsection%
6997     #1%
6998     \print@rightmargin@eledsection%
6999   }
7000   {}
7001   {}
7002
7003 \patchcmd{\@makechapterhead}% For BIDI
7004   {\if@RTL\raggedleft\else\raggedright\fi}%
7005   {\if@eled@sectioning\else%
7006     \if@RTL\raggedleft\else\raggedright\fi%
7007   \fi%
7008   }%
7009   {}%
7010   {}%
7011
7012 \patchcmd{\@makeschapterhead}
7013   {#1}
7014   {\print@leftmargin@eledsection%
7015     #1%
7016     \print@rightmargin@eledsection%
7017   }
7018   {}
7019   {}
7020
7021 \pretocmd{\@sect}
7022   {\let\old@edtext=\edtext
7023     \let\edtext=\dummy@edtext@showlemma%
7024   }
7025   {}
7026   {}
7027
7028 \apptocmd{\@sect}
7029   {\let\edtext=\old@edtext}
7030   {}
7031   {}
7032
7033 \pretocmd{\@ssect}
7034   {\let\old@edtext=\edtext%
7035     \let\edtext=\dummy@edtext@showlemma%

```



```

7036 }
7037 {}
7038 {}
7039
7040 \apptocmd{\@ssect}
7041 {\let\edtext=\old@edtext}
7042 {}
7043 {}
7044
7045 %

```

hyperref also redefines \@sect. That is why, when manipulating arguments, we patch \@sect and the same only if hyperref is not used. If it is, we patch the \NR commands.

```

7046 \@ifpackageloaded{nameref}{
7047
7048   \patchcmd{\NR@sect}
7049     {#8}
7050     {#8%
7051       \print@rightmargin@eledsection%
7052     }
7053     {}
7054     {}
7055
7056   \patchcmd{\NR@sect}
7057     {\hskip #3\relax}
7058     {\hskip #3\relax%
7059       \print@leftmargin@eledsection%
7060     }
7061     {}
7062     {}
7063
7064   \patchcmd{\NR@ssect}
7065     {#5}
7066     {#5%
7067       \print@rightmargin@eledsection%
7068     }
7069     {}
7070     {}
7071
7072   \patchcmd{\NR@ssect}
7073     {\hskip #1}
7074     {\hskip #1%
7075       \print@leftmargin@eledsection%
7076     }
7077     {}
7078     {}
7079   }%
7080   {
7081     \patchcmd{\@sect}
7082     {#8}

```

```

7083     {#8%
7084     \print@rightmargin@eledsection%
7085     }
7086     {}
7087     {}
7088
7089     \patchcmd{\@sect}
7090     {\hskip #3\relax}
7091     {\hskip #3\relax%
7092     \print@leftmargin@eledsection%
7093     }
7094     {}
7095     {}
7096
7097     \patchcmd{\@ssect}
7098     {#5}
7099     {#5%
7100     \print@rightmargin@eledsection%
7101     }
7102     {}
7103     {}
7104
7105     \patchcmd{\@ssect}
7106     {\hskip #1}
7107     {\hskip #1%
7108     \print@leftmargin@eledsection%
7109     }
7110     {}
7111     {}
7112     }%
7113 }
7114 %

```

Now, we have finished to patch the commands, using # with a catcode equals to 12. We close the `\notbool{@noeled@sec}` statement, restore the normal catcode for # and reopen a new `\notbool{@noeled@sec}` statement.

```

7115 {}}%
7116 \protect\catcode`\#=6 %Space NEEDS by \catcode
7117 \notbool{@noeled@sec}{%
7118 %

```

### XXX.6 Main code of `\eledxxx` commands

`\eled@sectioning@out` `\eled@sectioning@out` is the output file, to dump the pstarts where a sectioning command is used.

```

7119 \newwrite\eled@sectioning@out
7120 %

```

\eledchapter And now, the user sectioning commands, which write to the file, and also add content  
 \eledsection as a “normal” line.

```

\eledsubsection
\eledsubsubsection
\eledchapter*
\eledsection*
\eledsubsection*
\eledsubsubsection*
7121 \newcommand{\eledchapter}[2] [] {%
7122   #2%
7123   \ifledRcol%
7124     \immediate\write\eled@sectioningR@out{%
7125       \string\eled@chapter{#1}{\unexpanded{#2}}{\the\l@dnumpstartsR}{-}{R}
7126     }%
7127   \else%
7128     \immediate\write\eled@sectioning@out{%
7129       \string\eled@chapter{#1}{\unexpanded{#2}}{\the\l@dnumpstartsL}{-}{-}
7130     }%
7131   \fi%
7132 }
7133
7134 \newcommand{\eledsection}[2] [] {%
7135   #2%
7136   \ifledRcol%
7137     \immediate\write\eled@sectioningR@out{%
7138       \string\eled@section{#1}{\unexpanded{#2}}{\the\l@dnumpstartsR}{-}{R}
7139     }%
7140   \else%
7141     \immediate\write\eled@sectioning@out{%
7142       \string\eled@section{#1}{\unexpanded{#2}}{\the\l@dnumpstartsL}{-}{-}
7143     }%
7144   \fi%
7145 }
7146
7147 \newcommand{\eledsubsection}[2] [] {%
7148   #2%
7149   \ifledRcol%
7150     \immediate\write\eled@sectioningR@out{%
7151       \string\eled@subsection{#1}{\unexpanded{#2}}{\the\l@dnumpstartsR}{-}{R}
7152     }%
7153   \else%
7154     \immediate\write\eled@sectioning@out{%
7155       \string\eled@subsection{#1}{\unexpanded{#2}}{\the\l@dnumpstartsL}{-}{-}
7156     }%
7157   \fi%
7158 }
7159 \newcommand{\eledsubsubsection}[2] [] {%
7160   #2%
7161   \ifledRcol%
7162     \immediate\write\eled@sectioningR@out{%
7163       \string\eled@subsubsection{#1}{\unexpanded{#2}}{\the\l@dnumpstartsR}
7164     }-}{R}
7165   \else%

```

```

7166 \immediate\write\eled@sectioning@out{%
7167 \string\eled@subsubsection{#1}{\unexpanded{#2}}{\the\l@dnumpstartsL
7168 }{}{}
7168 }%
7169 \fi%
7170 }
7171
7172
7173 \WithSuffix\newcommand\eledchapter*[2][]{%
7174 #2%
7175 \ifledRcol%
7176 \immediate\write\eled@sectioningR@out{%
7177 \string\eled@chapter{#1}{\unexpanded{#2}}{\the\l@dnumpstartsR}{*}{R}
7178 }%
7179 \else%
7180 \immediate\write\eled@sectioning@out{%
7181 \string\eled@chapter{#1}{\unexpanded{#2}}{\the\l@dnumpstartsL}{*}{R}
7182 }%
7183 \fi%
7184 }
7185
7186 \WithSuffix\newcommand\eledsection*[2][]{%
7187 #2%
7188 \ifledRcol%
7189 \immediate\write\eled@sectioningR@out{%
7190 \string\eled@section{#1}{\unexpanded{#2}}{\the\l@dnumpstartsR}{*}{R}
7191 }%
7192 \else%
7193 \immediate\write\eled@sectioning@out{%
7194 \string\eled@section{#1}{\unexpanded{#2}}{\the\l@dnumpstartsL}{*}{R}
7195 }%
7196 \fi%
7197 }
7198
7199 \WithSuffix\newcommand\eledsubsection*[2][]{%
7200 #2%
7201 \ifledRcol%
7202 \immediate\write\eled@sectioningR@out{%
7203 \string\eled@subsection{#1}{\unexpanded{#2}}{\the\l@dnumpstartsR}{*}{R}
7204 }%
7205 \else%
7206 \immediate\write\eled@sectioning@out{%
7207 \string\eled@subsection{#1}{\unexpanded{#2}}{\the\l@dnumpstartsL}
7208 }{*}{R}
7208 }%
7209 \fi%
7210 }
7211
7212 \WithSuffix\newcommand\eledsubsubsection*[2][]{%

```

```

7213 #2%
7214 \ifledRcol%
7215 \immediate\write\eled@sectioningR@out{%
7216 \string\eled@subsubsection{#1}{\unexpanded{#2}}{\the\l@dumpstartsR
7217 }{*}{R}
7218 }%
7219 \else%
7220 \immediate\write\eled@sectioning@out{%
7221 \string\eled@subsubsection{#1}{\unexpanded{#2}}{\the\l@dumpstartsL
7222 }{*}{L}
7223 }%
7224 \fi%

```

### XXX.7 Macros written in the auxiliary file

```

\eled@chapter
\eled@section
\eled@subsection
\eled@subsubsection

```

The sectioning macros, called in the auxiliary file. They have five arguments:

1. Optional arguments of  $\LaTeX$  sectioning command.
2. Mandatory arguments of  $\LaTeX$  sectioning command.
3. Pstart number.
4. Side: R if right, nothing if left.
5. Starred or not.

```

7225 \def\eled@chapter#1#2#3#4#5{%
7226 \ifstrempy{#4}%
7227 {%
7228 \ifstrempy{#1}%
7229 {%
7230 \global\csdef{eled@sectioning@#3#5}{\let\edtext=\
dummy@edtext@showlemma\chapter{#2}}%
7231 \global\csdef{eled@sectmark@#3#5}{\let\edtext=\dummy@edtext{}\
chaptermark{#2}}%
7232 }%Need for \pairs, because of using parbox.
7233 {%
7234 \global\csdef{eled@sectioning@#3#5}{\let\edtext=\
dummy@edtext@showlemma\chapter[#1]{#2}}%
7235 \global\csdef{eled@sectmark@#3#5}{\let\edtext=\dummy@edtext{}\
chaptermark{#2}}%Need for \pairs, because of using parbox.
7236 }%
7237 }%
7238 {%
7239 \ifstrempy{#1}%
7240 {%
7241 \global\csdef{eled@sectioning@#3#5}{\let\edtext=\
dummy@edtext@showlemma\chapter*{#2}}%

```

```

7241     {\global\csdef{eled@sectioning@#3#5}{\let\edtext=\
dummy@edtext@showlemma\chapter*{#1}{#2}}}%Bug in LaTeX!
7242     }%
7243     \listcsadd{eled@sections#5@@}{#3}%
7244     }
7245     \def\eled@section#1#2#3#4#5{%
7246     \ifstrempy{#4}%
7247     {\ifstrempy{#1}%
7248     {%
7249     \global\csdef{eled@sectioning@#3#5}{\section{#2}}%
7250     \global\csdef{eled@sectmark@#3#5}{\let\edtext=\dummy@edtext}\
sectionmark{#2}}}%Need for \pairs, because of using parbox.
7251     }%
7252     {%
7253     \global\csdef{eled@sectioning@#3#5}{\section[#1]{#2}}%
7254     \global\csdef{eled@sectmark@#3#5}{\let\edtext=\dummy@edtext}\
sectionmark{#1}}}%Need for \pairs, because of using parbox.
7255     }%
7256     }%
7257     {\ifstrempy{#1}%
7258     {\global\csdef{eled@sectioning@#3#5}{\section*{#2}}}%
7259     {\global\csdef{eled@sectioning@#3#5}{\section*{#1}{#2}}}%Bug in
LaTeX!
7260     }
7261     \listcsadd{eled@sections#5@@}{#3}%
7262     }
7263     \def\eled@subsection#1#2#3#4#5{%
7264     \ifstrempy{#4}%
7265     {\ifstrempy{#1}%
7266     {%
7267     \global\csdef{eled@sectioning@#3#5}{\subsection{#2}}%
7268     \global\csdef{eled@sectmark@#3#5}{\let\edtext=\dummy@edtext}\csuse
{subsectionmark}{#2}}}%Need for \pairs, because of using parbox. \csuse in
case of \subsectionmark is not defined (book)
7269     }%
7270     {%
7271     \global\csdef{eled@sectioning@#3#5}{\subsection[#1]{#2}}%
7272     \global\csdef{eled@sectmark@#3#5}{\let\edtext=\dummy@edtext}\csuse
{subsectionmark}{#1}}}%Need for \pairs, because of using parbox. \csuse in
case of \subsectionmark is not defined (book)
7273     }%
7274     }%
7275     {\ifstrempy{#1}%
7276     {\global\csdef{eled@sectioning@#3#5}{\subsection*{#2}}}%
7277     {\global\csdef{eled@sectioning@#3#5}{\subsection*{#1}{#2}}}%Bug in
LaTeX!
7278     }
7279     \listcsadd{eled@sections#5@@}{#3}%
7280     }
7281     \def\eled@subsubsection#1#2#3#4#5{%

```

```

7282 \ifstrempy{#4}%
7283   {\ifstrempy{#1}%
7284     {\global\csdef{eled@sectioning@#3#5}{\subsubsection{#2}}}%
7285     {\global\csdef{eled@sectioning@#3#5}{\subsubsection{#1}{#2}}}%
7286   }%
7287   {\ifstrempy{#1}%
7288     {\global\csdef{eled@sectioning@#3#5}{\subsubsection*{#2}}}%
7289     {\global\csdef{eled@sectioning@#3#5}{\subsubsection*{#1}{#2}}}%Bug
in LaTeX!
7290   }
7291 \listcsgadd{eled@sections#5@@}{#3}%
7292 }
7293
7294 %

```

End of the conditional test about noeledsec option.

```

7295 }{}
7296 %

```

## XXXI Page breaking or no page breaking depending of specific lines

By default, page breaks are automatic. However, the user can define lines which will force page breaks, or prevent page breaks around one specific line. On the first run, the line-list file records the line number of where the page break is being changed (either forced, or prevented). On the next run, page breaks occur either before or after this line, depending on how the user sets the command. The default setting is after the line.

**\normal@page@break** \normal@page@break is an etoolbox list which contains the absolute line number of the last line, for each page.

```

7297 \def\normal@page@break{}
7298 %

```

**\prev@pb** The \l@prev@pb macro is a etoolbox list, which contains the lines in which page breaks occur (before or after). The \l@prev@nopb macro is a etoolbox list, which contains the lines with NO page break before or after.

```

7299 \def\l@prev@pb{}
7300 \def\l@prev@nopb{}
7301 %

```

**\ledpb** The \ledpb macro writes the call to \led@pb in line-list file. The \ledpbnum macro writes the call to \led@pbnum in line-list file. The \lednopb macro writes the call to \led@nopb in line-list file. The \lednopbnum macro writes the call to \led@nopbnum in line-list file.

```

7302 \newcommand{\ledpb}{\write\linenum@out{\string\led@pb}}
7303 \newcommand{\ledpbnum}[1]{\write\linenum@out{\string\led@pbnum{#1}}}
7304 \newcommand{\lednopb}{\write\linenum@out{\string\led@nopb}}
7305 \newcommand{\lednopbnum}[1]{\write\linenum@out{\string\led@nopbnum{#1}}}
7306 %

```

`\led@pb` The `\led@pb` adds the absolute line number in the `\prev@pb` list. The `\led@pbnum` adds the argument in the `\prev@pb` list. The `\led@nopb` adds the absolute line number in the `\prev@nopb` list. The `\led@nopbnum` adds the argument in the `\prev@nopb` list.

```

7307 \newcommand{\led@pb}{\listxadd{\l@prev@pb}{\the\absline@num}}
7308 \newcommand{\led@pbnum}[1]{\listxadd{\l@prev@pb}{#1}}
7309 \newcommand{\led@nopb}{\listxadd{\l@prev@nopb}{\the\absline@num}}
7310 \newcommand{\led@nopbnum}[1]{\listxadd{\l@prev@nopb}{#1}}
7311 %

```

`\ledpbsetting` The `\ledpbsetting` macro only changes the value of `\led@pb@macro`, for which the default value is before.

`\led@pb@setting`

```

7312 \def\led@pb@setting{before}
7313 \newcommand{\ledpbsetting}[1]{\gdef\led@pb@setting{#1}}
7314 %

```

`\led@check@pb` The `\led@check@pb` and `\led@check@nopb` are called before or after each line. They check if a page break must occur, depending on the current line and on the content of `\l@pb`.

`\led@check@nopb`

```

7315 \newcommand{\led@check@pb}{\xifinlist{\the\absline@num}{\l@prev@pb}{\pagebreak[4]}}
7316 \newcommand{\led@check@nopb}{%
7317   \IfStrEq{\led@pb@setting}{before}{%
7318     \xifinlist{\the\absline@num}{\l@prev@nopb}{%
7319       {\numdef{\abs@prevline}{\the\absline@num-1}%
7320       \xifinlist{\abs@prevline}{\normal@page@break}%
7321       {\nopagebreak[4]\enlargethispage{\baselineskip}}%
7322       {}}%
7323     }%
7324   }%
7325 }%
7326 \IfStrEq{\led@pb@setting}{after}{%
7327   \xifinlist{\the\absline@num}{\l@prev@nopb}{%
7328     \xifinlist{\the\absline@num}{\normal@page@break}%
7329     {\nopagebreak[4]\enlargethispage{\baselineskip}}%
7330     {}%
7331 }%
7332   {}%
7333 }%
7334 }%
7335 }
7336 %

```



## XXXII Long verse: prevents being separated by a page break

`\iflednopbinverse` The `\lednopbinverse` boolean is set to false by default. If set to true, `reledmac` will automatically prevent page breaks inside verse. The declaration is made at the beginning of the file, because it is used as a package option.

`\check@pb@in@verse` The `\check@pb@in@verse` checks if a verse is broken in two page. If true, it adds:

- The absolute line number of the first line of the verse -1 in the `\led@pb` list, if the page break must occur before the verse.
- The absolute line number of the first line of the verse -1 in the `\led@nopb` list, if the page break must occur after the verse.

```

7337 \newcommand{\check@pb@in@verse}{%
7338   \ifinstanza\iflednopbinverse\ifinserthangingsymbol% Using stanzas and
enabling page breaks in verse control, while on a hanging verse.
7339   \ifnum\page@num=\last@page@num\else%If we have change page
7340     \IfStrEq{\led@pb@setting}{before}{%
7341       \numgdef{\abs@line@verse}{\the\absline@num-1}%
7342       \ledpbnum{\abs@line@verse}%
7343     }{}%
7344     \IfStrEq{\led@pb@setting}{after}{%
7345       \numgdef{\abs@line@verse}{\the\absline@num-1}%
7346       \lednopbnum{\abs@line@verse}%
7347     }{}%
7348   \fi%
7349 \fi\fi\fi%
7350 }
7351 %

```

## XXXIII Compatibility with eledmac

Here, we define some command for the `eledmac-compat` option.

```

7352 \ifeledmaccompat%
7353
7354 \newcommand{\footnormalX}[1]{\arrangementX[#1]{normal}}%
7355 \newcommand{\footparagraphX}[1]{\arrangementX[#1]{paragraph}}%
7356 \newcommand{\foottwocolX}[1]{\arrangementX[#1]{twocol}}%
7357 \newcommand{\footthreecolX}[1]{\XarrangementX[#1]{threecol}}%
7358
7359 \unless\ifnocritical@
7360   \newcommand{\footnormal}[1]{\Xarrangement[#1]{normal}}%
7361   \newcommand{\footparagraph}[1]{\Xarrangement[#1]{paragraph}}%
7362   \newcommand{\foottwocol}[1]{\Xarrangement[#1]{twocol}}%
7363   \newcommand{\footthreecol}[1]{\Xarrangement[#1]{threecol}}%

```

```

7364 \let\hsizetwocol\Xhsizetwocol
7365 \let\hsizethreecol\Xhsizethreecol
7366 \let\bhookXnote\Xbhooknote
7367 \let\boxsymlinenum\Xboxsymlinenum
7368 \let\symlinenum\Xsymlinenum
7369 \let\beforenumberinfootnote\Xbeforenumber
7370 \let\afternumberinfootnote\Xafternumber
7371 \let\beforeXsymlinenum\Xbeforesymlinenum
7372 \let\afterXsymlinenum\Xaftersymlinenum
7373 \let\inplaceofnumber\Xinplaceofnumber
7374 \let\Xlemmaseparator\lemmaseparator
7375 \let\afterlemmaseparator\Xafterlemmaseparator
7376 \let\beforelemmaseparator\Xbeforelemmaseparator
7377 \let\inplaceoflemmaseparator\Xinplaceoflemmaseparator
7378 \let\txbeforeXnotes\Xtxbeforenotes
7379 \let\afterXrule\Xafterrule
7380 \let\numberonlyfirstinline\Xnumberonlyfirstinline
7381 \let\numberonlyfirstintwoline\Xnumberonlyfirstintwoline
7382 \let\nonumberinfootnote\Xnonumberinfootnote
7383 \let\pstartinfootnote\Xpstart
7384 \let\pstartinfootnoteeverytime\Xpstarteverytime
7385 \let\onlyXpstart\Xonlypstart
7386 \let\Xnonumberinfootnote\Xnonumber
7387 \let\nonbreakableafternumber\Xnonbreakableafternumber
7388 \let\maxhXnotes\Xmaxhnotes
7389 \let\beforeXnotes\Xbeforenotes
7390 \let\boxlinenum\Xboxlinenum
7391 \let\boxlinenumalign\Xboxlinenumalign
7392 \let\boxstartlinenum\Xboxstartlinenum
7393 \let\boxendlinenum\Xboxendlinenum
7394 \let\twoline\Xtwoline
7395 \let\morethantwoline\Xmorethantwoline
7396 \let\twolinebutnotmore\Xtwolinebutnotmore
7397 \let\twolineonlyinsamepage\Xtwolineonlyinsamepage
7398 \fi
7399
7400 \unless\ifnofamiliar@
7401 \let\notesXwidthliketwocolumns\noteswidthliketwocolumnsX
7402 \fi
7403 \newcommandx{\parafootsep}[2][1,usedefault]{%
7404 \Xparafootsep[#1]{#2}%
7405 \parafootsepX[#1]{#2}
7406 }%
7407
7408 \newcommandx{\afternote}[2][1,usedefault]{%
7409 \Xafternote[#1]{#2}%
7410 \afternoteX[#1]{#2}%
7411 }%
7412
7413 \unless\ifnoend@

```

```

7414 \let\XendXtwolines\Xendtwolines
7415 \let\XendXmorethantwolines\Xendmorethantwolines
7416 \let\bhookXendnote\Xendbhooknote
7417 \let\boxXendlinenum\Xendboxlinenum%
7418 \let\boxXendlinenumalign\Xendboxlinenumalign%
7419 \let\boxXendstartlinenum\Xendboxstartlinenum%
7420 \let\boxXendendlinenum\Xendboxendlinenum%
7421 \let\XendXlemmaseparator\Xendlemmaseparator
7422 \let\XendXbeforelemmaseparator\Xendbeforelemmaseparator
7423 \let\XendXafterlemmaseparator\Xendafterlemmaseparator
7424 \let\XendXinplaceoflemmaseparator\Xendinplaceoflemmaseparator
7425 \fi
7426
7427 \AtBeginDocument{%
7428 \ifdef\lineref{}\let\lineref\edlineref}%
7429 }%
7430
7431
7432 \fi%
7433 %

```

</code>

## Appendix A Some things to do when changing version

### Appendix A.1 Migrating from edmac to ledmac

If you have never used edmac, ignore this section. If you have used edmac and are starting on a completely new document, ignore this section. Only read this section if you are converting an original edmac document to use ledmac.

The package still provides the original `\text` command, but it is (a) deprecated, and (b) its name has been changed<sup>35</sup> to `\critext`; use the `\edtext` macro instead. However, if you do use `\critext` (the new name for `\text`), the following is a reminder.

`\critext`

Within numbered paragraphs, footnotes and endnotes are generated by forms of the `\critext` macro:

```
\critext{⟨lemma⟩}{⟨commands⟩}/
```

The `⟨lemma⟩` argument is the lemma in the main text: `\critext` both prints this as part of the text, and makes it available to the `⟨commands⟩` you specify to generate notes. The `/` at the end terminates the command; it is part of the macro's definition so that spaces after the macro will be treated as significant.

For example:

|                                              |                              |
|----------------------------------------------|------------------------------|
| I saw my friend <code>\critext{Smith}</code> | 1 I saw my friend            |
| <code>\Afootnote{Jones C, D.}/</code>        | 2 Smith on Tuesday.          |
| on Tuesday.                                  | <u>2 Smith</u> ] Jones C, D. |

The lemma Smith is printed as part of this sentence in the text, and is also made available to the footnote that specifies a variant, Jones C, D. The footnote macro is supplied with the line number at which the lemma appears in the main text.

The `⟨lemma⟩` may contain further `\critext` commands. Nesting makes it possible to print an explanatory note on a long passage together with notes on variants for individual words within the passage. For example:

|                                               |                              |
|-----------------------------------------------|------------------------------|
| <code>\critext{I saw my friend</code>         | 1 I saw my friend            |
| <code>\critext{Smith}{\Afootnote{Jones</code> | 2 Smith on Tuesday.          |
| <code>C, D.}/ on Tuesday.}</code>             | <u>2 Smith</u> ] Jones C, D. |
| <code>\Bfootnote{The date was</code>          | 1-2 I saw my friend          |
| <code>July 16, 1954.}</code>                  | Smith on Tuesday.] The       |
| <code>/</code>                                | date was July 16, 1954.      |

However, `\critext` cannot handle overlapping but unnested notes—for example, one note covering lines 10–15, and another covering 12–18; a `\critext` that starts in the `⟨lemma⟩` argument of another `\critext` must end there, too. (The `\lemma` and `\linenum` commands may be used to generate overlapping notes if necessary.)

The second argument of the `\critext` macro, `⟨commands⟩`, is the same as the second argument to the `\edtext` macro.

It is possible to define aliases for `\critext`, which can be easier to type. You can make a single character substitute for `\critext` by saying this:

<sup>35</sup>A name like `\text` is likely to be defined by other  $\text{\LaTeX}$  packages (it certainly is by the AMS packages) and it seems sensible to try and avoid clashes with other definitions.

```
\catcode`\<=\active
\let<=\critext
```

Then you might say `<{Smith}\variant{Jones}/`. This of course destroys the ability to use `<` in any new macro definitions, so long as it remains in effect; hence it should be used with care.

Changing the character at the end of the command requires more work:

```
\catcode`\<=\active
\def\xtext#1#2>{\critext{#1}{#2}/}
\let<=\xtext
```

This allows you to say `<{Smith}\Afootnote{Jones}>`.

Aliases for `\critext` of the first kind shown here also can't be nested—that is, you can't use the alias in the text that forms the first argument to `\critext`. (See VI p. 106 to find out why.) Aliases of the second kind may be nested without any problem.

If you really have to use `\critext` in any of the tabular or array environments, then `\edtext` must not be used in the same environment. If you use `\critext` in one of these environments then you have to issue the declaration `\usingcritext` beforehand. The declaration `\usingedtext` must be issued to revert to the default assumption that `\edtext` will be used.

## Appendix A.2 Migration from ledmac to eledmac

In `eledmac`, some changes were made in the code to allow easy customization. This may cause problems for people who have already made their own. The next sections explain how to handle this.

If you have created your own series using `\addfootins` and `\addfootinsX`, you must use instead the `\newseries` command (see 5.5.1 p. 28), and remove any `\Xfootnote` command.

If you have customized the `\XXXXXfmt` command, please check whether you can achieve the same by the commands documented for display options (6 p. 29) or `\Xfootnote` options (5.2.2 p. 22). Otherwise please add a new ticket on Github to request a new function for doing this.<sup>36</sup>

If for some reason you do not want to make the modifications to use the new functions of `eledmac`, you can continue using your own `\XXXXXfmt` command, but you must replace:

```
\renewcommand*{XXXXfmt}[3]
```

with

```
\renewcommandx*{XXXXfmt}[4][4=Z]
```

---

<sup>36</sup><https://github.com/maieul/ledmac/issues>

If you do not make that, you will get a spurious [X], where X is series letter.

If you used a `\protect` command inside a `\footnote` command inside a numbered section, you must change the `\protect` to `\noexpand`. Otherwise the command after the `\protect` will be discarded.

### Appendix A.3 Migration to eledmac 1.5.1

The version 1.5.1 corrects a bug in `stanzaindentsrepetition` (cf. 8.3 p. 41). This bug had two consequences:

1. `stanzaindentsrepetition` did not work when its value was greater than 2.
2. `stanzaindentsrepetition` worked wrong when its value was equal to 2.

So, if you used `stanzaindentsrepetition` with a value equal to 2, you had to change your `\setstanzaindents`. Explanation:

```
\setcounter{stanzaindentsrepetition}{2}
\setstanzaindents{5,1,0}
```

This code, in versions prior to 1.5.1, made the first line have an indentation of 0, the second line of 1, the third verse of 0, the fourth verse of 1 and so forth.

But this code should have instead achieved quite the contrary: the first line would have an indentation of 1, the second line of 0, the third line of 1, the fourth line of 0 and so forth.

So version 1.5.1 corrected this bug. If you want to keep the former presentation, you must change:

```
\setcounter{stanzaindentsrepetition}{2}
\setstanzaindents{5,1,0}
```

to:

```
\setcounter{stanzaindentsrepetition}{2}
\setstanzaindents{5,0,1}
```

### Appendix A.4 Migration to eledmac 1.12.0

The migration to eledmac 1.12.0 is easy:

- You must first delete all the auxiliary files, then compile your document three times as usual.
- If you have modified `\l@reg`, which is not advisable, you must rename it to `\@nl@reg`.

There is an additional problem. If you have put text into brackets just after `\pstart` or `\pend`, this text will be considered to be an optional argument of `\pstart` or `\pend` (see 4.2.3 p. 16). If so, add a `\relax` between `\pstart`/`\pend` and the first bracket.

The version 1.12.0 also introduce a better way to handle sectional divisions inside numbered text. Please read 14.2 p. 56.

## Appendix A.5 Migration to eledmac 17.1

This version changes the default setting of `\Xpstart`. Henceforth, `pstart` numbers will be printed in footnotes within the section of text where you have called `\numberpstarttrue`.

We do not see any reason to print them in the other sections. However, if you want to print the `pstart` numbers in all of the footnotes, whatever the section, without having to use `\numberpstarttrue`, you can use `\Xpstarteverytime`.

## Appendix A.6 Migration to eledmac 1.21.0

### Appendix A.6.1 `\Xledsetnormalparstuff` and `\ledsetnormalparstuffX`

The `\ledsetnormalparstuff` has been split into two different commands:

- `\Xledsetnormalparstuff` for critical notes;
- `\ledsetnormalparstuffX` for familiar notes.

Both commands can take an optional argument which is the series letter. If you have redefined `\ledsetnormalparstuff` or any of the commands which call them, you must change them accordingly.

### Appendix A.6.2 Endnotes

In any case, delete the `.end` file before the next run.

The previous version of Eledmac had a bug: there were two spaces between the starting page number and the starting line number, but only one space between the ending page number and the ending line number.

As a matter of fact, a spurious space was added after the first `\printnpnum`. This spurious space has been deleted. However, if you want to keep the previous spurious space, you may load the package with the `oldprintnpnumspace` option.

If you have redefined `\endprint`, you must:

- Contact us and ask for the feature that required your hack, in order to avoid such a hack in the future.
- Use the new fifth argument.
- Add `\xdef\@currentseries{#4}` at the beginning of your own command.

## Appendix A.7 Migration to eledmac 1.22.0

The `\ledinnote` command now takes a first optional argument, which is the label for the hyperreference. If you have redefined it, change your redefinition, and check whether you can avoid this redefinition by only redefining `\ledinnotemark`.

## Appendix A.8 Migration to eledmac 1.23.0

You must delete the numbered auxiliary files before compiling with the new version of eledmac.

## Appendix A.9 Migration from eledmac to reledmac

There are many changes in reledmac which require the user to make modifications.

### Appendix A.9.1 Risk of ‘no room for a new’

The risk to obtain a ‘no room for a new something’ error is greater in reledmac than it is in eledmac. See 17.2 p. 58 in order to know how to limit it.

### Appendix A.9.2 Multiple indices with memoir

Eledmac and ledmac used the specific indexing tools of the memoir class designed to produce multiple indices. However, eledmac could also use imakeidx or indextools tools independently of the memoir class. This system forced to maintain redundant code. Since reledmac, we use only the imakeidx or indextools tools.

Consequently: Users of memoir are invited to use indextool or imakeidx to produce multiple indices.

### Appendix A.9.3 Deprecated commands and options

The table of deprecated commands and their alternatives follows. Note that the way some commands must be used may have changed. Please read the handbook.

| <i>Deprecated command</i>          | <i>Replaced with</i>                                                           |
|------------------------------------|--------------------------------------------------------------------------------|
| <code>\addfootins</code>           | <code>\newseries</code>                                                        |
| <code>\addfootinsX</code>          | <code>\newseries</code>                                                        |
| <code>\critext</code>              | <code>\edtext</code>                                                           |
| <code>\falseverse</code>           | <code>\newverse</code>                                                         |
| <code>\interparanoteglu</code>     | <code>\Xafternote</code> and <code>\afternoteX</code>                          |
| <code>\ledchapter</code>           | <code>\eledchapter</code>                                                      |
| <code>\ledsection</code>           | <code>\eledsection</code>                                                      |
| <code>\ledsetnormalparstuff</code> | <code>\Xledsetnormalparstuff</code> and<br><code>\ledsetnormalparstuffX</code> |
| <code>\ledsubsection</code>        | <code>\eledsubsection</code>                                                   |
| <code>\ledsubsubsection</code>     | <code>\eledsubsubsection</code>                                                |
| <code>\noeledsec</code>            | Package option <code>noeledsec</code>                                          |
| <code>\noendnotes</code>           | Package option <code>noendnotes</code>                                         |
| <code>\pageparbreak</code>         | <code>\ledpb</code>                                                            |

The `ledsecnolinenumber` option has been removed, because it was related to deprecated commands.

The `oldprintnpnumspace` option has been removed too, because it was related to a historical bug. The `\usingedtext` and `\usingcritext` commands are also deprecated.



**Appendix A.9.4 \renewcommand replaced by command**

Many uses of \renewcommand have been replaced with uses of specific commands. Please read handbook about specific commands.

| <i>Deprecated \renewcommand</i> | <i>Replaced with</i>                                       |
|---------------------------------|------------------------------------------------------------|
| \@led@extranofeet               | \newseries                                                 |
| \apprefprefixmore               | \setapprefprefixmore                                       |
| \apprefprefixsingle             | \setapprefprefixsingle                                     |
| \endstanzaextra                 | Optional argument of \&                                    |
| \hangingsymbol                  | \sethangingsymbol                                          |
| \ledfootinsdim                  | \Xmaxhnotes and \maxhnotesX                                |
| \parafootftmsep                 | \Xparafootsep and \parafootsepX                            |
| \notenumfont                    | \Xnotenumfont, \Xendnotenumfont<br>and \notenumfontX       |
| \notefontsetup                  | \Xnotefontsize,<br>\Xendnotefontsize and<br>\notefontsizeX |
| \sidenotesep                    | \setsidenotsep                                             |
| \startstanzahook                | Optional argument of \stanza                               |
| \symplinenum                    | \Xsymplinenum                                              |

**Appendix A.9.5 Commands the names of which have been changed**

In order to help the migration from eledmac to reledmac, you may load reledmac with eledmac-compat option. However, it is advised not to, and to change the command names themselves instead. In many cases, you use only a few of them, except the \footparagraph command.

| <i>Old command</i>      | <i>New command</i>          |
|-------------------------|-----------------------------|
| \footparagraph          | \Xarrangement               |
| \footnormal             | \Xarrangement               |
| \foottwocol             | \Xarrangement               |
| \footthreecol           | \Xarrangement               |
| \footparagraphX         | \arrangementX               |
| \footnormalX            | \arrangementX               |
| \foottwocolX            | \arrangementX               |
| \footthreecolX          | \arrangementX               |
| \afterlemmaseparator    | \Xafterlemmaseparator       |
| \afternote              | \Xafternote and \afternoteX |
| \afternumberinfootnote  | \Xafternumber               |
| \afterXrule             | \Xafterrule                 |
| \afterXsymplinenum      | \Xaftersymplinenum          |
| \beforelemmaseparator   | \Xbeforelemmaseparator      |
| \beforenumberinfootnote | \Xbeforenumber              |
| \beforeXnotes           | \Xbeforenotes               |
| \beforeXsymplinenum     | \Xbeforesymplinenum         |

| <i>Old command</i>                         | <i>New command</i>                                        |
|--------------------------------------------|-----------------------------------------------------------|
| <code>\bhookXnote</code>                   | <code>\Xbhookendnote</code>                               |
| <code>\bhookXnote</code>                   | <code>\Xbhooknote</code>                                  |
| <code>\boxendlinenum</code>                | <code>\Xboxendlinenum</code>                              |
| <code>\boxlinenum</code>                   | <code>\Xboxlinenum</code>                                 |
| <code>\boxlinenumalign</code>              | <code>\Xboxlinenumalign</code>                            |
| <code>\boxstartlinenum</code>              | <code>\Xboxstartlinenum</code>                            |
| <code>\boxsymlinenum</code>                | <code>\Xboxsymlinenum</code>                              |
| <code>\boxXendlinenum</code>               | <code>\Xendboxlinenum</code>                              |
| <code>\boxXendlinenumalign</code>          | <code>\Xendboxlinenumalign</code>                         |
| <code>\boxXendstartlinenum</code>          | <code>\boxXendstartlinenum</code>                         |
| <code>\letboxXendendlinenum</code>         | <code>\Xendletboxendlinenum</code>                        |
| <code>\hsizetwocol</code>                  | <code>\Xhsizetwocol</code>                                |
| <code>\hsizethreecol</code>                | <code>\Xhsizethreecol</code>                              |
| <code>\inplaceoflemmaseparator</code>      | <code>\Xinplaceoflemmaseparator</code>                    |
| <code>\inplaceofnumber</code>              | <code>\Xinplaceofnumber</code>                            |
| <code>\lemmaseparator</code>               | <code>\Xlemmaseparator</code>                             |
| <code>\maxhXnotes</code>                   | <code>\Xmaxhnotes</code>                                  |
| <code>\morethantwolines</code>             | <code>\Xmorethantwolines</code>                           |
| <code>\nonumberinfootnote</code>           | <code>\Xnonumber</code>                                   |
| <code>\notesXwidthliketwocolumns</code>    | <code>\noteswidthliketwocolumnsX</code>                   |
| <code>\noXlemmaseparator</code>            | <code>\Xnolemmaseparator</code>                           |
| <code>\numberonlyfirstinline</code>        | <code>\Xnumberonlyfirstinline</code>                      |
| <code>\numberonlyfirstintwolines</code>    | <code>\Xnumberonlyfirstintwolines</code>                  |
| <code>\nonbreakableafternumber</code>      | <code>\Xnonbreakableafternumber</code>                    |
| <code>\onlyXpstart</code>                  | <code>\Xonlypstart</code>                                 |
| <code>\parafootsep</code>                  | <code>\Xparafootsep</code> and <code>\parafootsepX</code> |
| <code>\pstartinfootnote</code>             | <code>\Xpstart</code>                                     |
| <code>\pstartinfootnoteeverytime</code>    | <code>\Xpstarteverytime</code>                            |
| <code>\symlinenum</code>                   | <code>\Xsymlinenum</code>                                 |
| <code>\twolines</code>                     | <code>\Xtwolines</code>                                   |
| <code>\twolinesbutnotmore</code>           | <code>\Xtwolinesbutnotmore</code>                         |
| <code>\twolinesonlyinsamepage</code>       | <code>\Xtwolinesonlyinsamepage</code>                     |
| <code>\txtbeforeXnotes</code>              | <code>\Xtxtbeforenotes</code>                             |
| <code>\XendXafterlemmaseparator</code>     | <code>\Xendafterlemmaseparator</code>                     |
| <code>\XendXbeforelemmaseparator</code>    | <code>\Xendbeforelemmaseparator</code>                    |
| <code>\XendXinplaceoflemmaseparator</code> | <code>\Xendinplaceoflemmaseparator</code>                 |
| <code>\XendXlemmaseparator</code>          | <code>\Xendlemmaseparator</code>                          |
| <code>\XendXmorethantwolines</code>        | <code>\Xendmorethantwolines</code>                        |
| <code>\XendXtwolines</code>                | <code>\Xendtwolines</code>                                |
| <code>\Xnonumberinfootnote</code>          | <code>\Xnonumber</code>                                   |
| <code>\lineref</code>                      | <code>\edlineref</code>                                   |

### Appendix A.9.6 Endnotes

With *reledmac*, there is now one auxiliary file for every endnotes set (*.Aend*, *.Bend*, *.Cend* etc.). If you have overridden `\doendnotes` (which you would not have done) you must adapt your code.

### Appendix A.9.7 Z Series

The ‘Z’ series of notes has been removed. Only five series are provided now by default: A, B, C, D, E.

### Appendix A.9.8 Internal commands

Users who have overridden internal commands, which is wrong, must adapt according to the following. Or better, they should not override any of such commands and use *reledmac* options instead.

- If you have modified `\Xfootfmt`, note that the fourth argument is now mandatory.
- `\unvxh` has been replaced with `\Xunvxh` and `\unvxhX` with two mandatory arguments.

## Appendix A.10 Migration to *reledmac* 2.1.0

*Reledmac* 2.1.0 fix some bugs when using `\Xbhooknote` and `\bhooknoteX` not in order to execute code at the beginning of each notes, but to insert content of at the beginning of each notes.

People who use these commands to do it, which is not the original idea, must change the following:

1. Horizontal space is no longer automatically added after the content of the `\Xbhooknote/\bhooknoteX` argument. You must include it manually. So instead of `\Xbhooknote{content}`, use `\Xbhooknote{content }`.
2. Indent is no longer automatically added before the content of the `\Xbhooknote/\bhooknoteX` argument. If you want to keep it, add `\indent` in the argument of `\Xbhooknote/\bhooknoteX`.

## Appendix A.11 Migration to *reledmac* 2.1.3

*Reledmac* 2.1.3 fix an historical bug, (style in *ledmac* 0.7!) which doubled the space before the rules of paragraphed familiar footnotes. Consequently, if you use paragraphed familiar footnotes, you should maybe adapt it, playing with `\beforenotesX`.

## Appendix A.12 Migration to *reledmac* 2.3.0

Before *reledmac* 2.3.0, for typesetting verse, any empty line was considered a paragraph inside verses. Counting empty lines this created breaking verse, hanging verses, and also added spurious vertical spaces. Version 2.3.0 disables paragraph in stanza. If you want vertical space, use optional argument of `\stanza` or `\endverse`.

### Appendix A.13 Migration to reledmac 2.4.0

It is not mandatory, but strongly recommended, to change any `\renewcommand{\endashchar}{\langle...\rangle}` to the use of `\Xlinerrangeseparator` or `/` and `\Xendlinerrangeseparator` (6.2.3 p. 31).

### Appendix A.14 Migration to reledmac 2.5.0

It is strongly recommended to stop redefining `\printnpnum` and to use the hooks documented in 6.3 p. 34.

`\xlineref` does not print anymore the side flag (R for right side), because it is incompatible with numerical test. Use `\xflagref` to obtain it.

The `\printlines` and `\printendlines` commands take now an eighth argument, which is the side flag. It is strongly recommended to NEVER redefine these two commands and to use the setting commands instead (or to ask for new setting commands if the actual does not answer to your needs). However, if you have done it, just change your redefinition to have a new argument.

It is strongly recommended to stop redefining `\fullstop` and to use `\Xsublinesep` instead.

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| <code>\l@dgetsidenote@margin</code>   | 1 |
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| <code>\l@dlp@rbox</code>              | 1 |
| <code>\l@dlsn@te</code>               | 1 |
| <code>\l@dlsnote</code>               | 1 |
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| <code>\l@dtabnoexpands</code>                    | 1     |
| <code>\l@dunboxmpfoot</code>                     | 1     |
| <code>\l@dunhbox@line</code>                     | 1     |
| <code>\l@dzeropenalties</code>                   | 1     |
| <code>\label</code>                              | 47    |
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| <code>\labelref@list</code>                      | 1     |
| <code>\labelrefsparseline</code>                 | 1     |
| <code>\labelrefsparsesubline</code>              | 1     |
| <code>\last@page@num</code>                      | 1     |
| Lavagnino, John                                  | 11    |
| <code>\led@check@nopb</code>                     | 1     |
| <code>\led@check@pb</code>                       | 1     |
| <code>\led@err@AutoparNotNumbered</code>         | 1     |
| <code>\led@err@edtextoutsidepstart</code>        | 1     |
| <code>\led@err@EdtextWithoutFootnote</code>      | 1     |
| <code>\led@err@FootnoteWithoutEdtext</code>      | 1     |
| <code>\led@err@HighEndColumn</code>              | 1     |
| <code>\led@err@LineationInNumbered</code>        | 1     |
| <code>\led@err@LowStartColumn</code>             | 1     |
| <code>\led@err@ManyLeftnotes</code>              | 1     |
| <code>\led@err@ManyRightnotes</code>             | 1     |
| <code>\led@err@ManySidenotes</code>              | 1     |
| <code>\led@err@NumberingNotStarted</code>        | 1     |
| <code>\led@err@NumberingShouldHaveStarted</code> | 1     |
| <code>\led@err@NumberingStarted</code>           | 1     |
| <code>\led@err@NumberingWithoutPstart</code>     | 1     |
| <code>\led@err@PendNoPstart</code>               | 1     |
| <code>\led@err@PendNotNumbered</code>            | 1     |
| <code>\led@err@PstartInPstart</code>             | 1     |
| <code>\led@err@PstartNotNumbered</code>          | 1     |
| <code>\led@err@ReverseColumns</code>             | 1     |
| <code>\led@err@TooManyColumns</code>             | 1     |
| <code>\led@err@UnequalColumns</code>             | 1     |
| <code>\led@error@fail@patch@@doclearpage</code>  | 1     |
| <code>\led@error@fail@patch@@iiiminipage</code>  | 1     |
| <code>\led@error@fail@patch@@makecol</code>      | 1     |
| <code>\led@error@fail@patch@@reinserts</code>    | 1     |
| <code>\led@error@fail@patch@endminipage</code>   | 1     |
| <code>\led@error@ImakeidxAfterEledmac</code>     | 1     |
| <code>\led@error@IndextoolsAfterEledmac</code>   | 1     |
| <code>\led@mess@NotesChanged</code>              | 1     |
| <code>\led@mess@SectionContinued</code>          | 1     |
| <code>\led@nopb</code>                           | 1     |
| <code>\led@nopbnum</code>                        | 1     |
| <code>\led@pb</code>                             | 1     |
| <code>\led@pb@setting</code>                     | 1     |
| <code>\led@pbnum</code>                          | 1     |
| <code>\led@toksa</code>                          | 1     |

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| <code>\led@toksb</code> .....                      | 1     |
| <code>\led@warn@AppLabelOutEdtext</code> .....     | 1     |
| <code>\led@warn@BadAction</code> .....             | 1     |
| <code>\led@warn@BadAdvancelineLine</code> .....    | 1     |
| <code>\led@warn@BadAdvancelineSubline</code> ..... | 1     |
| <code>\led@warn@BadLineation</code> .....          | 1     |
| <code>\led@warn@BadLinenummargin</code> .....      | 1     |
| <code>\led@warn@BadLockdisp</code> .....           | 1     |
| <code>\led@warn@BadSetline</code> .....            | 1     |
| <code>\led@warn@BadSetlinenum</code> .....         | 1     |
| <code>\led@warn@BadSidenotemargin</code> .....     | 1     |
| <code>\led@warn@BadSublockdisp</code> .....        | 1     |
| <code>\led@warn@DuplicateLabel</code> .....        | 1     |
| <code>\led@warn@LineFileObsolete</code> .....      | 1     |
| <code>\led@warn@NoIndexFile</code> .....           | 1     |
| <code>\led@warn@NoLineFile</code> .....            | 1     |
| <code>\led@warn@NoMarginpars</code> .....          | 1     |
| <code>\led@warn@RefUndefined</code> .....          | 1     |
| <code>\led@warn@SeriesStillExist</code> .....      | 1     |
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| <code>\ledrsnotefontsetup</code> .....             | 1, 49 |
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| <code>\ledsetnormalparstuff@common</code> .....    | 1     |
| <code>\ledsetnormalparstuffX</code> .....          | 1     |
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| <code>\line@list@version</code> | 1     |
| <code>\line@margin</code>       | 1     |
| <code>\line@num</code>          | 1     |
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| <code>\linenummargin</code>     | 1, 19 |
| <code>\linenumr@p</code>        | 1     |
| <code>\linenumrep</code>        | 1     |
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| <code>\linerangesep@</code>     | 1     |
| <code>\list@clear</code>        | 1     |
| <code>\list@clearing@reg</code> | 1     |
| <code>\list@create</code>       | 1     |
| <code>\lock@disp</code>         | 1     |
| <code>\lock@off</code>          | 1     |
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| <code>\m@mmf@check</code>         | 1  |
| <code>\m@mmf@prepare</code>       | 1  |
| <code>\M@sect</code>              | 1  |
| <code>\makehboxofhboxes</code>    | 1  |
| <code>\managestanza@modulo</code> | 1  |
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| <code>\measuremcell</code>        | 1  |
| <code>\measuremrow</code>         | 1  |
| <code>\measuretbody</code>        | 1  |
| <code>\measuretcell</code>        | 1  |

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| \mppara@vfootnoteX      | 1      |
| \mpparafootgroup        | 1      |
| \mpparavfootnote        | 1      |
| \mpthreecolfootgroup    | 1      |
| \mpthreecolfootgroupX   | 1      |
| \mpthreecolfootsetup    | 1      |
| \mpthreecolfootsetupX   | 1      |
| \mptwocolfootgroup      | 1      |
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| \n@num@stanza                 | 1  |
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| \newhookarg@specific          | 1  |
| \newhookcommand@series        | 1  |
| \newhookcommand@series@reload | 1  |
| \newhooktoggle@series         | 1  |
| \newhooktoggle@series@reload  | 1  |
| \newhooktoggle@specific       | 1  |
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| \newverse                     | 1  |
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| \noeledsec                    | 56 |
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| \normal@page@break            | 1  |
| \normal@pars                  | 1  |
| \normalbfnoteX                | 1  |
| \normalbodyfootmarkX          | 1  |
| \normalfootfmt                | 1  |
| \normalfootfmtX               | 1  |
| \normalfootfootmarkX          | 1  |
| \normalfootgroup              | 1  |

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|-----------------------------------------|-------|
| <code>\normalfootgroupX</code>          | 1     |
| <code>\normalfootnoterule</code>        | 1     |
| <code>\normalfootnoteruleX</code>       | 1     |
| <code>\normalfootstart</code>           | 1     |
| <code>\normalfootstartX</code>          | 1     |
| <code>\normalvfootnote</code>           | 1     |
| <code>\normalvfootnoteX</code>          | 1     |
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| <code>\notenumfontX</code>              | 36    |
| <code>\noteschanged@false</code>        | 1     |
| <code>\noteschanged@true</code>         | 1     |
| <code>\noteswidthliketwocolumnsX</code> | 40    |
| <code>\nulledindex</code>               | 1     |
| <code>\nullsetzen</code>                | 1     |
| <code>\num@lines</code>                 | 1     |
| <code>\numberedpar@false</code>         | 1     |
| <code>\numberedpar@true</code>          | 1     |
| <code>\numberingfalse</code>            | 1     |
| <code>\numberingtrue</code>             | 1     |
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| <code>\parafootfmt</code>     | 1     |
| <code>\parafootfmtX</code>    | 1     |
| <code>\parafootgroup</code>   | 1     |
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| <code>\prepare@prenotesX</code> .....             | 1     |
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| <code>\prev@nopb</code> .....                     | 1     |
| <code>\prev@pb</code> .....                       | 1     |
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| <code>\print@leftmargin@eledsection</code> .....  | 1     |
| <code>\print@line</code> .....                    | 1     |
| <code>\print@notesX</code> .....                  | 1     |
| <code>\print@rightmargin@eledsection</code> ..... | 1     |
| <code>\print@Xfootnoterule</code> .....           | 1     |
| <code>\print@Xnotes</code> .....                  | 1     |
| <code>\printendlines</code> .....                 | 1     |
| <code>\printlineendnote</code> .....              | 1     |
| <code>\printlineendnotearea</code> .....          | 1     |
| <code>\printlinefootnote</code> .....             | 1     |
| <code>\printlinefootnotearea</code> .....         | 1     |
| <code>\printlinefootnotenumbers</code> .....      | 1     |
| <code>\printlines</code> .....                    | 1     |
| <code>\printnpnum</code> .....                    | 1     |
| <code>\printpstart</code> .....                   | 1     |
| <code>\printsymlineendnotearea</code> .....       | 1     |
| <code>\printsymlinefootnotearea</code> .....      | 1     |
| <code>\printXafternumber</code> .....             | 1     |
| <code>\printXbeforenumber</code> .....            | 1     |
| <code>\pst@rtedLfalse</code> .....                | 1     |
| <code>\pst@rtedLtrue</code> .....                 | 1     |
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| <code>\setmcellleft</code> .....                     | 1     |
| <code>\setmcellright</code> .....                    | 1     |
| <code>\setmrowcenter</code> .....                    | 1     |
| <code>\setmrowleft</code> .....                      | 1     |
| <code>\setmrowright</code> .....                     | 1     |
| <code>\setnoteswidthliketwocolumnsX@</code> .....    | 1     |
| <code>\setnotesXpositionliketwocolumns@</code> ..... | 1     |
| <code>\setprintendlines</code> .....                 | 1     |
| <code>\setprintlines</code> .....                    | 1     |
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| <code>\settccllleft</code> .....                     | 1     |
| <code>\settccllright</code> .....                    | 1     |
| <code>\settoggle@series</code> .....                 | 1     |
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| <code>\sub@lock</code>            | 1                                      |
| <code>\sub@off</code>             | 1                                      |
| <code>\sub@on</code>              | 1                                      |
| <code>\subline@num</code>         | 1                                      |
| <code>\sublinenumberstyle</code>  | 1, 20                                  |
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| <code>\sublinenumr@p</code>       | 1                                      |
| <code>\sublinenumrep</code>       | 1                                      |
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| <code>\sublockdisp</code>         | 1                                      |
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| <code>\theadcolcount</code>          | 1     |
| <code>\theendpageline</code>         | 1     |
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## Change History

|                                                                                                                                                                               |     |
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| v0.1.0.                                                                                                                                                                       |     |
| General: First public release                                                                                                                                                 | 1   |
| v0.2.0.                                                                                                                                                                       |     |
| General: Added tabmac code, and extended indexing                                                                                                                             | 1   |
| \ifl@dmemoir: Added \ifl@dmemoir for memoir class having been used                                                                                                            | 65  |
| \morenoexpands: Added \l@dtabnoexpands to \no@expands                                                                                                                         | 109 |
| \reledmac@error: Added \eledmac@error and replaced error messages                                                                                                             | 66  |
| v0.2.1.                                                                                                                                                                       |     |
| \@lab: Removed page setting from \@lab                                                                                                                                        | 227 |
| General: Added text about normal labeling                                                                                                                                     | 47  |
| Bug fixes and match with mempatch v1.8                                                                                                                                        | 1   |
| Major changes to insert code when memoir is loaded                                                                                                                            | 222 |
| \doxtrafeet: Renamed \doxtrafeet to \l@ddoxtrafeet                                                                                                                            | 219 |
| \edlabel: Tweaked \edlabel to get correct page numbers                                                                                                                        | 224 |
| \l@ddodoreinxtrafeet: Renamed \dodoreinxtrafeet to \l@ddodoreinxtrafeet                                                                                                       | 220 |
| \morenoexpands: Removed some \lets from \no@expands. These were in edmac but Peter Wilson feels that they should not have been as they disabled page/line refs in a footnotes | 109 |
| \zz@@@: Minor change to \zz@@@                                                                                                                                                | 224 |
| v0.2.2.                                                                                                                                                                       |     |
| General: Improved paragraph footnotes                                                                                                                                         | 1   |
| New Dekker example                                                                                                                                                            | 1   |
| Used \providecommand for \@gobblethree to avoid clash with the amsfonts package                                                                                               | 71  |
| \footfudgefiddle: Added \footfudgefiddle                                                                                                                                      | 150 |
| \line@list@stuff: Added initial write of page number in \line@list@stuff                                                                                                      | 102 |
| \para@footsetup: Added \footfudgefiddle to \para@footsetup                                                                                                                    | 150 |
| \para@footsetupX: Added \footfudgefiddle to \para@footsetupX                                                                                                                  | 185 |
| v0.3.0.                                                                                                                                                                       |     |
| \@lab: Replaced \the\line@num by \linenumr@p\line@num in \@lab, and similar for sub-lines                                                                                     | 227 |
| \@nl@reg: Added a bunch of code to \@nl for handling \setlinenum                                                                                                              | 91  |
| General: Includes edstanza and more                                                                                                                                           | 1   |
| \ledlinenum: Added \linenumr@p and \sublinenum@rep to \leftlinenum and \rightlinenum                                                                                          | 83  |
| \linenumberlist: Added \linenumberlist mechanism                                                                                                                              | 71  |
| \printendlines: Added \linenumr@p and \sublinenumr@p to \printendlines                                                                                                        | 199 |
| \printlines: Added \linenumr@p and \sublinenumr@p to \printlines                                                                                                              | 170 |
| \sublinenumr@p: Added \linenumberstyle and \sublinenumberstyle                                                                                                                | 82  |
| v0.3.1.                                                                                                                                                                       |     |
| General: Not released. Added remarks about the parallel package                                                                                                               | 1   |
| v0.4.0.                                                                                                                                                                       |     |
| \@iiiminipage: Modified kernel \@iiiminipage and \endminipage to cater for critical footnotes                                                                                 | 244 |
| General: Added final/draft options                                                                                                                                            | 63  |
| Added ledgroup environment                                                                                                                                                    | 245 |
| Added ledgroupsize environment                                                                                                                                                | 245 |
| Added minipage, etc., support                                                                                                                                                 | 1   |



|                                                                                                          |     |
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| \edtext: Added \showlemma to \edtext                                                                     | 110 |
| \l@dfeetendmini: Added \l@dfeetbeginmini, \l@dfeetendmini and all their supporting code                  | 242 |
| \mpnormalfootgroup: Added \mpnormalfootgroup                                                             | 148 |
| \mpnormalvfootnote: Added \mpnormalvfootnote                                                             | 146 |
| \showlemma: Added \showlemma                                                                             | 71  |
| \Xarrangement@normal: Added minpage footnote setup to \footnormal                                        | 146 |
| v0.4.1.                                                                                                  |     |
| General: Added code for changing \docclearpage                                                           | 222 |
| Not released. Minor editorial improvements and code tweaks                                               | 1   |
| Only change \@footnotetext and \@footnotemark if memoir not used                                         | 172 |
| \edindex: Let eledmac take advantage of memoir's indexing                                                | 250 |
| \print@Xnotes: Added \@opXfeet                                                                           | 219 |
| \Xdo@feet: Changed \Xdo@feet code for easier extensions                                                  | 219 |
| v0.5.0.                                                                                                  |     |
| \@footnotetext: Enabled regular \footnote in numbered text                                               | 173 |
| \@xympar: Eliminated \marginpar disturbance                                                              | 236 |
| General: Added left and right side notes                                                                 | 236 |
| Added sidenotes, familiar footnotes in numbered text                                                     | 1   |
| v0.5.1.                                                                                                  |     |
| General: Added moveable side note                                                                        | 236 |
| Fixed right line numbers killed in v0.5                                                                  | 1   |
| Only change \hsize in ledgroupsized environment otherwise page number can be in wrong place              | 245 |
| \affixline@num: Changed \affixline@num to cater for sidenotes                                            | 133 |
| \l@getsidenote@margin: Added \sidenotemargin and \sidenote@margin                                        | 236 |
| v0.6.0.                                                                                                  |     |
| \@lopR: Added \@pend, \@pendR, \@lopL and \@lopR in anticipation of parallel processing                  | 93  |
| \@nl@reg: Added \fix@page to \@nl                                                                        | 91  |
| Extended \@nl to include the page number                                                                 | 91  |
| General: Fixed long paragraphs looping                                                                   | 1   |
| Fixed minor typos                                                                                        | 1   |
| Prepared for eledpar package                                                                             | 1   |
| \fix@page: Added \last@page@num and \fix@page                                                            | 93  |
| \footnote: Changed \l@dbfnote and \vl@dbfnote as originals could give incorrect markers in the footnotes | 173 |
| \new@line: Extended \new@line to output page numbers                                                     | 103 |
| v0.7.0.                                                                                                  |     |
| \@nl@reg: Added \@nl@reg                                                                                 | 91  |
| \@ref@reg: Added \@ref@reg                                                                               | 100 |
| General: eledmac having been available for 2 years, deleted the commented out original edmac texts       | 1   |
| Maïeul Rouquette new maintainer                                                                          | 1   |
| Made macros of all messages                                                                              | 66  |
| Replaced all \interAfootnotelinepenalty, etc., by just \interfootnotelinepenalty                         | 1   |
| Tidying up for eledpar and ledarab packages                                                              | 1   |
| \affixline@num: Added skipnumering to \affixline@num                                                     | 133 |
| \do@actions@fixedcode: Added \do@actions@fixedcode                                                       | 132 |

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| \do@actions@next: Added number skipping to \do@actions                                                                                                          | 131 |
| \do@insidelinehook: Added \do@linehook for use in \do@line                                                                                                      | 129 |
| \endnumbering: Changed \endnumbering foreledpar                                                                                                                 | 75  |
| \fx@l@cks: Added \ch@cksub@l@ck, \ch@ck@l@ck and \fx@l@cks                                                                                                      | 136 |
| \footsplitskips: Added \footsplitskips for use in many footnote styles                                                                                          | 144 |
| \get@linelistfile: Added \get@linelistfile                                                                                                                      | 90  |
| \ifXnote@: Added \l@dunpstartsL, \ifl@dpairing and \ifpst@rted for/from<br>eledpar                                                                              | 72  |
| \initnumbering@reg: Added \initnumbering@reg                                                                                                                    | 73  |
| \l@advance@parledgroup@beforenormalnotes: Added \l@dunboxmpfoot contain-<br>ing some common code                                                                | 244 |
| \l@dcsnotetext@r: Added \l@emptyd@ta                                                                                                                            | 129 |
| \l@dgetline@margin: Added \l@dgetline@margin                                                                                                                    | 79  |
| \l@dgetlock@disp: Added \l@dgetlock@disp                                                                                                                        | 81  |
| \l@dgetsidenote@margin: Added \l@dgetsidenote@margin                                                                                                            | 236 |
| \l@drsn@te: Added \l@dlsn@te and \l@drsn@te for use in \do@line                                                                                                 | 129 |
| \l@dzeropenalties: Added \l@dzeropenalties                                                                                                                      | 125 |
| \ledlinenum: Added \ledlinenum for use by \leftlinenum and \rightlinenum                                                                                        | 83  |
| \line@list@stuff: Deleted \page@start from \line@list@stuff                                                                                                     | 102 |
| \list@clearing@reg: Added \list@clearing@reg                                                                                                                    | 89  |
| \n@num: Added \n@num                                                                                                                                            | 98  |
| \normalbfnoteX: Removed extraneous space from \normalbfnoteX                                                                                                    | 178 |
| \resumenumbering: Changed \resumenumbering foreledpar                                                                                                           | 76  |
| \setprintendlines: Added \setprintendlines for use by \printendlines                                                                                            | 198 |
| \setprintlines: Added \setprintlines for use by \printlines                                                                                                     | 167 |
| \skipnumbering: Added \skipnumbering and supports                                                                                                               | 106 |
| \sublinenumincrement: Added \firstlinenum, \linenumincrement, \firstsublinenum<br>and \linenumincrement                                                         | 81  |
| \sublinenumr@p: Using \linenumrep instead of \linenumr@p                                                                                                        | 82  |
| Using \sublinenumrep instead of \sublinenumr@p                                                                                                                  | 82  |
| \vnumfootnoteX: Removed extraneous space from \vnumfootnoteX                                                                                                    | 179 |
| v0.8.0.                                                                                                                                                         |     |
| General: Bug on endnotes fixed: in a // text, all endnotes will print and be placed at the<br>ends of columns ()                                                | 1   |
| v0.8.1.                                                                                                                                                         |     |
| General: Bug on \edtext ; \critex ; \lemma fixed: we can now us non-switching com-<br>mands                                                                     | 1   |
| v0.9.0.                                                                                                                                                         |     |
| General: No more ledpatch. All patches are now in the main file.                                                                                                | 1   |
| v0.9.1.                                                                                                                                                         |     |
| General: Fix some bugs linked to integrating ledpatch on the main file.                                                                                         | 1   |
| v0.10.0.                                                                                                                                                        |     |
| General: Corrections to \section and other titles in numbered sections                                                                                          | 1   |
| v0.11.0.                                                                                                                                                        |     |
| General: Makes it possible to add a symbol on each verse's hanging, as in French typog-<br>raphy. Redefines the command \hangingsymbol to define the character. | 1   |
| v0.12.0.                                                                                                                                                        |     |
| General: For compatibility witheledpar, possibility to use \autopar on the right side.                                                                          | 1   |
| Possibility to number \pstart.                                                                                                                                  | 17  |
| Possibility to number the pstart with the commands \numberpstarttrue.                                                                                           | 1   |

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| \ifXnote@: Added \ifledRcol and \ifnumberingR for/from eledpar . . . . .                                                               | 72      |
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| General: Don't number \pstarts of stanza. . . . .                                                                                      | 1       |
| The numbering of \pstarts restarts on each \beginnumbering. . . . .                                                                    | 1       |
| v0.13.0.                                                                                                                               |         |
| General: New stanzaindentsrepetition counter to repeat stanza indents every $n$ verses. . . . .                                        | 41      |
| New stanzaindentsrepetition counter: to repeat stanza indents every $n$ verses. . . . .                                                | 1       |
| \managestanza@modulo: New stanzaindentsrepetition counter to repeat stanza indents every $n$ verses. . . . .                           | 256     |
| v0.13.1.                                                                                                                               |         |
| General: \thepstartL and \thepstartR use now \bfseries and not \bf, which is deprecated and makes conflicts with memoir class. . . . . | 1       |
| v0.14.0.                                                                                                                               |         |
| General: Tweaked \edlabel to get correct line number if the command is first element of a paragraph. . . . .                           | 1       |
| \edlabel: Tweaked \edlabel to get correct line number if the command is first element of a paragraph. . . . .                          | 224     |
| v0.15.0.                                                                                                                               |         |
| General: Line numbering can be reset at each pstart. . . . .                                                                           | 78      |
| Possibility to print \pstart number inside. . . . .                                                                                    | 17      |
| \affixline@num: Line numbering can be disabled. . . . .                                                                                | 133     |
| \ifinserthangingsymbol: New management of hangingsymbol insertion, preventing undesirable insertions. . . . .                          | 254     |
| \printlines: Line numbering can be reset at each pstart. . . . .                                                                       | 170     |
| v0.17.0.                                                                                                                               |         |
| \ifinserthangingsymbol: New new management of hangingsymbol insertion, preventing undesirable insertions. . . . .                      | 254     |
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| General: \lemma can contain commands. . . . .                                                                                          | 24      |
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| New generic commands to customize footnote display. . . . .                                                                            | 29, 211 |
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| Possibility to have commands in sidenotes. . . . .                                                                                     | 49      |
| Some compatibility break with eledmac. Change of name: eledmac. . . . .                                                                | 1       |
| \morenoexpands: Change to be compatible with new features . . . . .                                                                    | 109     |
| v1.0.1.                                                                                                                                |         |
| General: Correction on \Xnumberonlyfirstinline with lineation by pstart or by page. . . . .                                            | 30      |
| v1.1.0.                                                                                                                                |         |
| General: Add \labelpstarttrue. . . . .                                                                                                 | 17      |
| Add \Xnumberonlyfirstintwolines . . . . .                                                                                              | 30      |
| Add \Xpstart and \Xonlypstart . . . . .                                                                                                | 32      |
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| New options for block of notes. . . . .                                                                                                | 38      |
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| \endquote:                               | Compatibility of \ledchapter with the <i>memoir</i> class. . . . . 282                                              |
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| \newseries@:                             | Remembers the language of the lemma, in order to create a correct direction for the footnote separator. . . . . 204 |
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| General:                                 | Debug with some special classes. . . . . 1                                                                          |
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| General:                                 | Add \Xnonbreakableafternumber. . . . . 33                                                                           |
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| General:                                 | Bug with komasscript + eledpar + chapter. . . . . 1                                                                 |
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| General:                                 | Bug with memoir class introduced by 1.4.5. . . . . 1                                                                |
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| \endquote:                               | Compatibility of sectioning commands with \autopar. . . . . 282                                                     |
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| Add <code>nonum</code> option for endnotes. . . . .                                                                                                                                                                                                                                                                               | 1   |
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| General: Fix bug with <code>\advanceline</code> at the beginning of a <code>\pstart</code> . . . . .                                                                                                                                                                                                                              | 1   |
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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
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| Fix bug with tabular environments when using <code>babel</code> or <code>polyglossia</code> language which override $\TeX$ <code>\roman</code> command, like Greek.                     | 1   |
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