

# eledmac

## 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

EDMAC, a set of PLAIN T<sub>E</sub>X macros, was made at the beginning of 90's for typesetting critical editions in the traditional way, i.e., similar to the Oxford Classical Texts, Teubner, Arden Shakespeare and other series. A separate set of PLAIN T<sub>E</sub>X macros, TABMAC, provides for tabular material. Another set of PLAIN T<sub>E</sub>X macros, EDSTANZA, assists in typesetting verse.

The eledmac package makes the EDMAC, TABMAC and EDSTANZA facilities available to authors who would prefer to use L<sup>A</sup>T<sub>E</sub>X. The principal functions provided by the package are marginal line numbering and multiple series of foot- and endnotes keyed to line numbers.

In addition to the EDMAC, TABMAC and EDSTANZA functions the package also provides for index entries keyed to both page and line numbers. Multiple series of the familiar numbered footnotes are also available.

Other L<sup>A</sup>T<sub>E</sub>X packages for critical editions include EDNOTES, and poemscot for poetical works.

eledmac 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 all cases). Example starting by “1-” are for basic uses, those starting by “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 eledmac mail list in:

<http://geekographie.maieul.net/146>

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<sup>\*</sup>This file (eledmac.dtx) has version number v1.24.1, last revised 2015/06/21.

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## 1 Introduction

The EDMAC macros [LW90] for typesetting critical editions of texts have been available for use with TeX since 90's. Since EDMAC was introduced there has been a small but constant demand for a version of EDMAC that could be used with LaTeX. The eledmac package is an attempt to satisfy that request.

eledmac would not have been possible without the amazing work by John Lavagnino and Dominik Wujastyk, the original authors of EDMAC. I, Peter Wilson, am very grateful for their encouragement and permission to use EDMAC as a base. The majority of both the code and this manual are by these two. The tabular material is based on the TABMAC code [Bre96], by permission of its author, Herbert Breger. The verse-related code is by courtesy of Wayne Sullivan, the author of EDSTANZA [Sul92], who has kindly supplied more than his original macros.

Since 2011's Maïeul Rouquette begun to maintain and extend eledmac. As plain T<sub>E</sub>X is used by little people, and L<sup>A</sup>T<sub>E</sub>X by more people eledmac and original EDMAC are more and more distant.

### 1.1 Overview

The eledmac package, together with LaTeX, provides several important facilities for formatting critical editions of texts in a traditional manner. Major features include:

- automatic stepped line numbering, by page or by section;
- sub-lineation within the main series of line numbers;
- variant readings automatically keyed to line numbers;
- caters for both prose and verse;

- multiple series of the footnotes and endnotes;
- block or columnar formatting of the footnotes;
- simple tabular material may be line numbered;
- indexing keyed to page and line numbers.

`eledmac` 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.

The original `EDMAC` can be used as a ‘stand alone’ processor or as part of a process. One example is its use as the formatting engine or ‘back end’ for the output of an automatic manuscript collation program. `COLLATE`, written by Peter Robinson, runs on the Apple Macintosh, can collate simultaneously up to a hundred manuscripts of any length, and provides facilities for the scholar to tailor the collation interactively. For further details of this and other related work, visit the `EDMAC` home page at <http://www.homepages.ucl.ac.uk/~ucgadkw/edmac/index.html>.

Apart from `eledmac` there are some other  $\text{\LaTeX}$  packages for critical edition typesetting. As Peter Wilson is not an author, or even a prospective one, of any critical edition work he could not provide any opinions on what authors in this area might feel comfortable with or how well any of the packages meet their needs.

`EDNOTES` [Lüc03], by Uwe Lück and Christian Tapp, is another  $\text{\LaTeX}$  package being developed for critical editions. Unlike `eledmac` which is based on `EDMAC`, `EDNOTES` takes a different (internal) approach and provides a different set of features. For example it provides additional facilities for overlapping lemmas and for handling tables. For more information there is a web site at <http://ednotes.sty.de.vu> or email to [ednotes.sty@web.de](mailto:ednotes.sty@web.de).

The `poemscol` package [Bur01] by John Burt is designed for typesetting critical editions of collections of poems. I do not know how, or whether, `poemscol` and `eledmac` will work together.

Critical authors may find it useful to look at `EDMAC`, `EDNOTES`, `eledmac`, and `poemscol` to see which best meets their needs.

At the time of writing Peter Wilson knows of two web sites, apart from the `EDMAC` home page, that have information on `eledmac`, and other programs.

- Jerónimo Leal pointed me to <http://www.guit.sssup.it/latex/critical.html>. This also mentions another package for critical editions called `MauroTeX` (<http://www.maurolico.unipi.it/mtex/mtex.htm>). These sites are both in Italian.
- Dirk-Jan Dekker maintains <http://www.djdekker.net/ledmac> which is a FAQ for typesetting critical editions and `eledmac`.

This manual contains a general description of how to use the  $\text{\LaTeX}$  version of `EDMAC`, namely `eledmac` (in sections 2 through Appendix A.1); the complete source code for the package, with extensive documentation (in sections 18 and following)



; and an Index to the source code. We do not suggest that you 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 the earlier sections. But no documentation, however thorough, can cover every question that comes up, and many can be answered quickly by consultation of the code. On a first reading, we suggest that you should read only the general documentation in sections 2, unless you are particularly interested in the innards of `eledmac`.

## 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  $\text{\TeX}$  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 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  $\text{\TeX}$  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.

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<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).

At the time of writing (1994), we are pleased to be able to say that EDMAC is being used for 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 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 eledmac

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*.

Since July 2011, ledmac is maintained by Maïeul Rouquette.

Important changes were put in version 1.0, to make eledmac more easily extensible (see 5.4 p. 25). These changes can trigger small problems with the old

<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).

<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.

customization. That is why a new name was selected: *eledmac*. To migrate from ledmac to eledmac, please read Appendix A.2 (p. 259).

### 1.2.3 List of works edited with (e)ledmac

A collaborative list of works edited with (e)ledmac is available on [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 (e)ledmac.

## 2 The eledmac package

eledmac is a three-pass package like L<sup>A</sup>T<sub>E</sub>X itself. Although your textual apparatus and line numbers will be printed even on the first run, it takes two more passes through L<sup>A</sup>T<sub>E</sub>X to be sure that everything gets to its right place. Any changes you make to the input file may similarly require three passes to get everything to the right place, if the changes alter the number of lines or notes. eledmac will tell you that you need to make more runs, when it notices, 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 L<sup>A</sup>T<sub>E</sub>X 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'll want to print the text that you're editing. Unnumbered text is not printed with line numbers, and you can't use eledmac'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. It is advised to read the relevant parts of the handbook before reading this section.

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

**ledsecnolinenumber** is deprecated.

**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. 49).

**noend** disables tools for end footnotes (`\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** `eledmac` allows to use of (two or more) critical series of notes and (two or more) new series of normal notes inside `minipage` and `ledgroup` environments (see 7 p. 38). 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 `eledmac` faster.

**nopbinverse** prevents page break inside verses.

**noquotation** by default, the quotation environment is redefined inside numbered text. You can disable this redefinition with **noquotation** (see 15 p. 50).

**oldprintnpnumspace** is only to be used if you want to have the (bugged) behavior of `\doendnotes` of `eledmac` versions prior to v.1.21.0 (see Appendix A.6.2 p. 261)

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

**series** `eledmac` defines six levels of notes: A, B, C, D, E, Z. Using all these levels consumes memory space and processing speed. This is why, if your work does not require all of the A-E, Z 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.

**xindy** and **xindy+hyperref** are for selecting **xindy** as the index processor (12.1 p. 44).

**widthliketwocolumns** set the width of the text disposed on one column to be the same as the width of the text disposed on two parallel columns with **eledpar**. This is useful when alternating between normal and parallel typesetting.

## 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`, like:

```
\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>.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. `eledmac` 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 Basis

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

```
\pstart
<paragraph of text>
\pend
```

Text that appears within a numbered section but isn't 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:

<code>\beginnumbering</code>	
<code>\pstart</code>	
This is a sample paragraph, with	
lines numbered automatically.	
<code>\pend</code>	1 This is a sample paragraph
	2 with lines numbered
<code>\pstart</code>	3 automatically.
This paragraph too has its	4 This paragraph too
lines automatically numbered.	5 has its lines automatically
<code>\pend</code>	6 numbered.
The lines of this paragraph are	The lines of this paragraph
not numbered.	are not numbered.
<code>\pstart</code>	7 And here the numbering
And here the numbering begins	8 begins again.
again.	
<code>\pend</code>	
<code>\endnumbering</code>	

### 4.2.2 Content before specific `\pstart` and after `\pend`

Both `\pstart` and `\pend` can take an 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` by brackets, or to add brackets after a `\pend`, just add a `\relax` between `\pstart/\pend` and the brackets.

For example, `eledmac` does not insert `\parskip` between paragraphs. This feature allows you to insert it:

```
\parskip=2\baselineskip% Set the skip between paragraphs
\AtEveryPend{\vskip\parskip}% Apply after every \Pend
```

. This feature is also useful when typesetting verses (see 6 p. 34) or `eledpar` (see 17.3 p. 53).

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

#### 4.2.3 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.

#### 4.2.4 Producing automatically `\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.      1 A paragraph of numbered
                                   2 text.

Another paragraph of numbered      3 Another paragraph of
text.                               4 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>

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

`\numberpstarttrue` It is possible to insert a number at every `\pstart` command. You must use  
`\numberpstartfalse` the `\numberpstarttrue` command to have it. You can stop the numbering  
`\thepstart` with `\numberpstartfalse`. You can redefine the command `\thepstart` to

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

change style. You can change the value of the `pstart` number by using *after* `\beginnumbering`:

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

On each `\beginnumbering` the numbering restarts.

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

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 in right to left, we `LuaLATEX` or `XYLATEX`, so you must switch text direction *before* the `\pstart` command.

#### 4.2.7 Memory limits

`\pausenumbering`  
`\resumenumbering`

**This paragraph is kept for history, but problem described below should not appear with `eledmac`.** `eledmac` stores a lot of information about line numbers and footnotes in memory 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 `LATEX` may reach its memory limit. There are two solutions to this. The first is to get a larger `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
1 Paragraph of
2 text.
\resumenumbering
\pstart
3 Another paragraph.
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 say

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

and say `\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, `eledmac` numbers every 5th line. There are two counters, `firstlinenum` and `linenumincrement`, that control this behaviour; 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:

```
\firstsublinenum
\sublinenumincrement
\linenumberlist
```

There are similar commands, `\firstsublinenum{<num>}` and `\sublinenumincrement{<num>}` for controlling sub-line numbering. You can define `\linenumberlist` to specify a non-uniform distribution of printed line numbers. For example:

```
\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 decimal 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 vacuous 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 value for `<location>` is one out of the list `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 that in effect at the `\pend` of a numbered paragraph. Apart from an initial setting for `\linenummargin`, only change it 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 the current paragraph).

#### 4.3.5 Other settings

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

## 4.4 Changing the line numbers

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

<code>\startsub</code>	You insert the <code>\startsub</code> and <code>\endsub</code> commands in your text to turn sub-
<code>\endsub</code>	
	lineation on and off. In plays, for example, stage directions 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 that changes in the middle.

<code>\startlock</code>	The <code>\startlock</code> command, used in running text, locks the line number at its current value, until you say <code>\endlock</code> . 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.
<code>\endlock</code>	

<code>\lockdisp</code>	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. (This assumes that, on the basis of the settings of the previous parameters, it is necessary to display a line number for this line.) You specify your preference using <code>\lockdisp{&lt;arg&gt;}</code> ; its argument is a word, either <code>first</code> , <code>last</code> , or <code>all</code> . The package initially sets this as <code>\lockdisp{first}</code> .
------------------------	--

<code>\setline</code>	In some cases you may want to modify the line numbers that are automatically
<code>\advanceline</code>	

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

`\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.

`\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.

## 5 The apparatus

### 5.1 Commands

#### 5.1.1 The lemma

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

`\edtext{<lemma>}{<commands>}`

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

For example:

<code>I saw my friend \edtext{Smith}{</code>	1 I saw my friend
<code>\Afootnote{Jones C, D.}}</code>	2 Smith on Tuesday.
<code>on Tuesday.</code>	<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  $\langle lemma \rangle$  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:

<code>\edtext{I saw my friend</code>	1 I saw my friend
<code>\edtext{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>	
<code>July 16, 1954.}</code>	<u>1-2 I saw my friend</u>
<code>}</code>	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; a `\edtext` that starts in the  $\langle lemma \rangle$  argument of another `\edtext` must end there, too. (The `\lemma` and `\linenum` commands may be used to generate overlapping notes if necessary.)

### 5.1.2 Footnotes

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

`\Afootnote` Six separate series of the footnotes are maintained; each macro takes one argument like `\Afootnote{ $\langle text \rangle$ }`. 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 Z notes at the bottom. These are the main macros that you will use to construct the critical apparatus of your text.

`\Bfootnote` If you need more series of critical notes, please look at 5.7.1 p. 34.

`\Cfootnote` 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 `\twolines` and `\morethantwolines` features for this note (cf. 5.4.1 p. 25).
- `nonum` to disable line numbering for this note.
- `nosep` to disable the lemma separator for this note.

Example: `\Afootnote[nonum]{ $\langle text \rangle$ }`.

### 5.1.3 Endnotes

`\Aendnote` The package also maintains six separate series of endnotes.  
`\Bendnote` If you do not need the endnotes facility, you should use `noend` option when  
`\Cendnote` loading `eledmac`.  
`\Dendnote` The mechanism is similar to the one for footnotes: each macro takes one or  
`\Eendnote` more optional arguments and one single argument, like:  
`\Zendnote` `\Aendnote[<option>]{<text>}`.

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

- `fulllines` to disable `\Xendtwolines` and `\Xendmoreethantwolines` features for this particular note (cf. 5.4.1 p. 25).
- `nosep` to disable the lemma separator for this particular note.

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.

`\doendnotesbysection` In this case, all the endnotes of the `<s>` series are printed, for all numbered section. 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 (5.4.2 p. 28).

As endnotes may be printed at any point in the document they always start with the page number where they are called. The macro `\printnpnum{<num>}` is used to print these numbers. Its default definition is:

```
\newcommand*{\printnpnum}[1]{p.#1} }
```

### 5.1.4 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[parapparus]{eledmac}
```

`\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`, before the note commands. The most common use of this command is to abbreviate the lemma that's printed in the notes. For example:

<code>\edtext{I saw my friend</code>	1 I saw my friend
<code>\edtext{Smith}{\Afootnote{Jones</code>	2 Smith on Tuesday.
<code>C, D.}} on Tuesday.}</code>	
<code>{\lemma{I \dots\ Tuesday.}</code>	<u>2 Smith] Jones C, D.</u>
<code>\Bfootnote{The date was</code>	
<code>July 16, 1954.}</code>	<u>1-2 I ... Tuesday.]</u>
<code>}</code>	The date was July 16, 1954.

`\linenum` You can use `\linenum{<arg>}` to change the line numbers passed to the notes. The notes are actually given 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). However, you can retain the value computed by `eledmac` 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 one number, the ending page number of the current lemma.

This command doesn't change the marginal line numbers in any way; it just changes the numbers passed to the footnotes. 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 (9 p. 38) 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.

**Changing the names of these commands** 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 doesn't mean you have to type `\Afootnote` when you'd rather say 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}}
```

## 5.2 Disambiguation of identical words in the apparatus

Sometimes, the same word occurs twice (or more) in the same line. `eledmac` 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.

### 5.2.1 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 won't if it is printed in a different line. The number is printed only after the second run.

### 5.2.2 Note 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 `eledmac`, the `\sameword` command considers these two unicodes options 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:

<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`.

- If you use Xe<sub>La</sub>TeX, add this line in your preamble: `\XeTeXinputnormalization 1`.
- If you use Lua<sub>La</sub>TeX, use the `uninormalize` of Michal Hoftich<sup>15</sup> with the `buffer` option set to true.

With these tools, Xe<sub>La</sub>TeX / Lua<sub>La</sub>TeX will dynamically normalize unicode input when reading the file. Consequently, you will have no problems with the `\sameword` command.

### 5.2.3 Use with `\lemma` command

If you use the `\lemma` command, `eledmac` 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}}.%
```

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

Consequently, you have to tell `eledmac` which instance of `\sameword` in the first argument of `\edtext` you want to reference:

- 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}
```

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

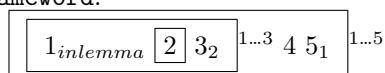
```

        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 schema, 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 `\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.

### 5.2.4 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}%
}

```

## 5.3 Alternate footnote formatting

If you just launch into `eledmac` using the commands outlined above, you will get a standard layout for your text and notes. You may be happy to accept this at the very beginning, while you get the hang of things, but the standard layout is not particularly pretty, and you will certainly want to modify it in due course. The package provides ways of changing the fonts and layout of your text, but these are not aimed at being totally comprehensive. They are enough to deal with simple variations from the norm, and to exemplify how you might go on to make more significant changes.

`\footparagraph` By default, all footnotes are formatted as a series of separate paragraphs in one column. Three other formats are also available for notes, and using these macros you can select a different format for a series of notes.

- `\footparagraph` formats all the footnotes of a series as a single paragraph;



- `\foottwocol` formats them as separate paragraphs, but in two columns;
- `\footthreecol`, in three columns.

Each of these macros takes one argument: a letter (between A and E) for the series of notes you want changed. So a text with three layers of notes might begin thus:

```
\footnormal{A}
\footthreecol{B}
\footparagraph{C}
```

This would make the A-notes ordinary, B-notes would be in three columns, and the bottom layer of notes would be formed into a paragraph on each page.

## 5.4 Display options

Since version 1.0, 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.

When a length, noted  $\langle l \rangle$ , is used, it can be stretchable: **a plus b minus c**. The final length *m* is calculated by L<sup>A</sup>T<sub>E</sub>X to have:  $a - c \leq m \leq a + b$ . If you use some relative unity<sup>16</sup>, it will be relative to fontsize of the footnote, except for commands concerning the place kept by the notes — including blank space.

### 5.4.1 Control line number printing

`\numberonlyfirstinline`

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 `\numberonlyfirstinline[s]`.

Use `\numberonlyfirstinline[s][false]` to disable this (*s* can be empty if you want to disable it for every series).

`\numberonlyfirstintwolines`

Suppose you have a lemma on line 2 and a lemma between line 2 and line 3. With `\numberonlyfirstinline`, the second lemma is considered to be on the same line as the first lemma. But if you use both `\numberonlyfirstinline[s]` and `\numberonlyfirstintwolines[s]`, the distinction is made. Use `\numberonlyfirstintwolines[s][false]` to disable this (*s* can be empty if you want to disable it for every series).

`\twolines`

`\morethantwolines`

If a lemma is printed on two subsequent lines, `eledmac` 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 `\twolines[s]{text}` and `\morethantwolines[s]{text}`. The *text* argument of `\twolines` will be printed if the lemma is on two lines, and the *text* argument of `\morethantwolines` will be printed if the lemma is on three or more lines. For example:

```
\twolines{sq.}
```

---

<sup>16</sup>Like `em` which is the width of a mg.

`\morethantwolines{sq.}`

Will print “1sq.” for a lemma which falls on lines 1-2 and “1sqq.” for a lemma which falls on lines 1-4.

`\morethantwolines` If you use `\twolines` without setting `\morethantwolines`, the  $\langle text \rangle$  argument of `\twolines` 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 `\twolinesbutnotmore[ $\langle series \rangle$ ]`.

It is possible to disable `\twolinesbutnotmore[ $\langle series \rangle$ ]` with `\twolinesbutnotmore[ $\langle series \rangle$ ][ $\langle f \rangle$ ]`.

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.

`\twolinesonlyinsamepage` However, you can force print the final page number with

`\twolinesonlyinsamepage[ $\langle series \rangle$ ]`.

Use `\twolinesonlyinsamepage[ $\langle series \rangle$ ][ $\langle false \rangle$ ]` to disable this.

You can disable `\twolines` and related for a specific note by using the ‘[fullines]’ argument in the note macro cf. 5.1.2 p. 19.

`\Xendtwolines` For endnotes, use `\Xendtwolines`; `\Xendmorethantwolines`; `\Xendtwolinesbutnotmore`;

`\Xendmorethantwolines` `\Xendtwolinesonlyinsamepage` instead of `\twolines`; `\morethantwolines`; `\twolinesbutnotmore`;

`\Xendtwolinesbutnotmore` `\twolinesonlyinsamepage`.

`\symlinenum`

For setting a particular symbol in place of the line number, you can use `\symlinenum[ $\langle s \rangle$ ]{ $\langle symbol \rangle$ }` in combination with `\numberonlyfirstinline[ $\langle s \rangle$ ]`. 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 not robust command.

`\nonumberinfootnote` You can use `\nonumberinfootnote[ $\langle s \rangle$ ]` if you don’t want to have the line number in a footnote. To cancel it, use `\nonumberinfootnote[ $\langle s \rangle$ ][ $\langle false \rangle$ ]`.

`\pstartinfootnote` You can use `\pstartinfootnote[ $\langle s \rangle$ ]` if you want to print the pstart number in the footnote, before the line and subline number. Use `\pstartinfootnote[ $\langle s \rangle$ ][ $\langle false \rangle$ ]` to disable this ( $\langle s \rangle$  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 :

- If you use lineation by pstart, the option is enabled.
- If you use lineation by section or by page, the option is disabled.

`\pstartinfootnoteeverytime` By default, the pstart number is printed only in the part of text where you have called `\numberpstarttrue`. 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 `\pstartinfootnoteeverytime[ $\langle s \rangle$ ]`. In this case, the pstart number will be printed every time in footnote.

`\onlypstartinfootnote` In combination with `\pstartinfootnote`, you can use `\onlypstartinfootnote[ $\langle s \rangle$ ]` if you want to print only the pstart number in the footnote, and not the line and subline number. Use `\onlypstartinfootnote[ $\langle s \rangle$ ][ $\langle false \rangle$ ]` to disable this ( $\langle s \rangle$  can be empty if you want to disable it for every series).

`\beforenumberinfootnote` With `\beforenumberinfootnote[ $\langle s \rangle$ ]{ $\langle l \rangle$ }`, 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.

`\afternumberinfootnote` With `\afternumberinfootnote[⟨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.

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

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

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

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

`\boxlinenum` 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 `\boxlinenum[⟨s⟩]{⟨l⟩}` to do that. To subsequently disable this feature, use `\boxlinenum` 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}
\afternumberinfootnote{0em}
\boxlinenum{1em}
```

`\boxsymmlinenumber` `\boxsymmlinenumber[⟨s⟩]{⟨l⟩}` is the same as `\boxlinenum` but for the line number symbol.

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

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

**R** to align right;

**C** to center.

When using `boxlinenum`, `eledmac` 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.

- `\boxstartlinenum[⟨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.
- `\boxendlinenum[⟨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.
```

`\boxXendlinenum` `\boxXendlinenum[⟨s⟩]{⟨l⟩}`, `\boxXendlinenumalign[⟨s⟩]{⟨text⟩}`, `\boxXendstartlinenum[⟨s⟩]{⟨l⟩}`, `\boxXendlinenumalign` `\boxXendendlinenum[⟨s⟩]{⟨l⟩}` are the same as, respectively, `\boxlinenum` and `\boxlinenumalign`, `\boxstartlinenum`, `\boxendlinenum` except in endnotes.

### 5.4.2 Separator between the lemma and the note

`\lemmaseparator` **For footnotes** By default, in a footnote, the separator between the lemma and the note is a right bracket (`\rbracket`). You can use `\lemmaseparator[⟨s⟩]{⟨lemmaseparator⟩}` 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 **breakable** space between the separator and the lemma.

`\beforelemmaseparator` Using `\beforelemmaseparator[⟨s⟩]{⟨l⟩}` 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.

`\afterlemmaseparator` Using `\afterlemmaseparator[⟨s⟩]{⟨l⟩}` you can add some space between separator and note. If your lemma separator is empty, this space won't be printed. The default value is 0.5 em.

`\nolemmaseparator` You can suppress the lemma separator, using `\nolemmaseparator[⟨s⟩]`, which is simply a alias of `\lemmaseparator[⟨s⟩]{}`.

`\inplaceoflemmaseparator` With `\inplaceoflemmaseparator[⟨s⟩]{⟨l⟩}` you can add a space if no lemma separator is printed. The default value is 1 em.

`\Xendlemmaseparator` **For endnotes** By default, there is no separator inside endnotes between the lemma and the content of the note. You can use `\lemmaseparator[⟨s⟩]{⟨lemmaseparator⟩}` to change this. The optional argument can be used to specify the series in which it is used. An common value of `<lemmaseparator>` is `\rbracket`.

Note that there is a non-breakable space between the lemma and the separator, but a **breakable** space between the separator and the lemma.

`\Xendbeforelemmaseparator` Using `\Xendbeforelemmaseparator[⟨s⟩]{⟨l⟩}` 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.

`\Xendafterlemmaseparator` Using `\Xendafterlemmaseparator[⟨s⟩]{⟨l⟩}` you can add some space between 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.

### 5.4.3 Font style

<code>\Xnotenumfont</code>	<code>\Xnotenumfont[⟨s⟩]{⟨command⟩}</code> is used to change the font style for line numbers in critical footnotes ; <code>⟨command⟩</code> must be one (or more) switching command, like <code>\bfseries</code> .
<code>\Xendnotenumfont</code>	<code>\Xendnotenumfont[⟨s⟩]{⟨command⟩}</code> is used to change the font style for line numbers in critical footnotes. <code>⟨command⟩</code> must be one (or more) switching command, like <code>\bfseries</code> .
<code>\notenumfontX</code>	<code>\notenumfontX[⟨s⟩]{⟨command⟩}</code> is used to change the font style for note numbers in familiar footnotes. <code>⟨command⟩</code> must be one (or more) switching command, like <code>\bfseries</code> .
<code>\Xnotefontsize</code>	<code>\Xnotefontsize[⟨s⟩]{⟨command⟩}</code> is used to define the font size of critical footnotes of the series. The default value is <code>\footnotesize</code> . The <code>⟨command⟩</code> must not be a size in pt, but a standard L <sup>A</sup> T <sub>E</sub> X size, like <code>\small</code> .
<code>\notefontsizeX</code>	<code>\notefontsizeX[⟨s⟩]{⟨command⟩}</code> is used to define the font size of critical footnotes of the series. The default value is <code>\footnotesize</code> . The <code>⟨command⟩</code> must not be a size in pt, but a standard L <sup>A</sup> T <sub>E</sub> X size, like <code>\small</code> .
<code>\Xendnotefontsize</code>	<code>\Xendnotefontsize[⟨s⟩]{⟨l⟩}</code> is used to define the font size of end critical footnotes of the series. The default value is <code>\footnotesize</code> . The <code>⟨command⟩</code> must not be a size in pt, but a standard L <sup>A</sup> T <sub>E</sub> X size, like <code>\small</code> .

### 5.4.4 Font of the lemma

<code>\lemmadisablefontselection</code>	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 <code>\Xlemmadisablefontselection[⟨s⟩]</code> command allows to disable it for a specific series.
<code>\endlemmadisablefontselection</code>	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 <code>\Xendlemmadisablefontselection[⟨s⟩]</code> to disable it for a specific series.

### 5.4.5 Styles of notes content

<code>\Xparindent</code>	By default, <code>eledmac</code> does not add indentation before the paragraphs inside critical footnotes. Use <code>\Xparindent[⟨series⟩]</code> to enable indentation.
<code>\parindentX</code>	By default, <code>eledmac</code> does not add indentation before the paragraphs inside familiar footnotes. Use <code>\parindentX[⟨series⟩]</code> to enable indentation.
<code>\Xhangindent</code>	For critical notes NOT paragraphed you can define an indent with <code>\Xhangindent[⟨s⟩]{⟨l⟩}</code> , 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.
<code>\hangindentX</code>	For familiar notes NOT paragraphed you can define an indentation with <code>\Xhangindent[⟨s⟩]{⟨l⟩}</code> , 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.

### 5.4.6 Arbitrary code at the beginning of notes

The three next commands add an 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 :

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

<code>\bhookXnote</code>	<code>\bhookXnote[<i>&lt;series&gt;</i>]{<i>&lt;code&gt;</i>}</code> is to be used at the beginning of the critical footnotes.
<code>\bhooknoteX</code>	<code>\bhooknoteX[<i>&lt;series&gt;</i>]{<i>&lt;code&gt;</i>}</code> is to be used at the beginning of the familiar footnotes.
<code>\bhookXendnote</code>	<code>\bhookXendnote[<i>&lt;series&gt;</i>]{<i>&lt;code&gt;</i>}</code> is to be used at the beginning of the end-notes.

### 5.4.7 Options for footnotes in columns

**Alignement** By default, texts in footnotes in two or three columns are flushed left 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 L<sup>A</sup>T<sub>E</sub>X. You can also let `<code>` empty.

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

`\RaggedRight` to have text left aligned *with hyphenation*.

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

`\RaggedLeft` to have text right aligned *with hyphenation*.

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

`\Centering` to have text centered *with hyphenation*.

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

<code>\hsizetwocol</code>	<code>\hsizetwocol[<i>&lt;s&gt;</i>]{<i>&lt;l&gt;</i>}</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>\hsizethreecol</code>	<code>\hsizethreecol[<i>&lt;s&gt;</i>]{<i>&lt;l&gt;</i>}</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[<i>&lt;s&gt;</i>]{<i>&lt;l&gt;</i>}</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[<i>&lt;s&gt;</i>]{<i>&lt;l&gt;</i>}</code> is used to change width of a column when familiar notes are displaying in three columns. Default value is <code>.3 \hsizethreecolX</code> .

### 5.4.8 Options for paragraphed footnotes

<code>\afternote</code>	You can add some space after a note by using <code>\afternote[⟨s⟩]{⟨l⟩}</code> . The default value is <code>1em plus .4em minus .4em</code> .
<code>\parafootsep</code>	For paragraphed footnotes (see below), you can choose the separator between each note by using <code>\parafootsep[⟨s⟩]{⟨text⟩}</code> . A common separator is the double pipe ( <code>\$  \$</code> ), which you can set by using <code>\parafootsep{\$\parallel\$}</code> . Note that if the symbol defined by <code>\symlinenum</code> must be used at the beginning of a note, the <code>\parafootsep</code> is not used before this note.
<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, or <code>\Xragged[⟨s⟩]+R</code> if you want it to be ragged right.
<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.

### 5.4.9 Options for block of notes

<code>\txtbeforeXnotes</code>	You can add some text before critical notes with <code>\txtbeforeXnotes[⟨s⟩]{⟨text⟩}</code> .
<code>\beforeXnotes</code>	You can change the vertical space printed before the rule of the critical notes with <code>\beforeXnotes[⟨s⟩]{⟨l⟩}</code> . The default value is <code>1.2em plus .6em minus .6em</code> . <b>Be careful, the standard L<sup>A</sup>T<sub>E</sub>X footnote rule, which is used by eledmac, decreases by 3pt. This 3pt decrease is not changed by this command..</b>
<code>\beforenotesX</code>	You can change the vertical space printed before the rule of the familiar notes with <code>\beforenotesX[⟨s⟩]{⟨l⟩}</code> . The default value is <code>1.2em plus .6em minus .6em</code> . <b>Be careful, the standard L<sup>A</sup>T<sub>E</sub>X footnote rule, which is used by eledmac, decreases 3pt. These 3pt are not changed by this command.</b>
<code>\afterXrule</code>	You can change the vertical space printed after the rule of the critical notes with <code>\afterXrule[⟨s⟩]{⟨l⟩}</code> . The default value is <code>0pt</code> . <b>Be careful, the standard L<sup>A</sup>T<sub>E</sub>X footnote rule, which is used by eledmac, adds 2.6pt. These 2.6pt are not changed by this command.</b>
<code>\afterruleX</code>	You can change the vertical space printed after the rule of the familiar notes with <code>\beforenotesX[⟨s⟩]{⟨l⟩}</code> . The default value is <code>0pt</code> . <b>Be careful, the standard L<sup>A</sup>T<sub>E</sub>X footnote rule, which is used by eledmac, adds 2.6pt. These 2.6pt are not changed by this command.</b>
<code>\preXnotes</code>	You can set the space before the first series of critical notes printed on each page and set a different amount of space for subsequent the series on the page. You can do it with <code>\preXnotes{⟨l⟩}</code> . Default value is <code>0pt</code> . You can disable this feature by setting the length to <code>0pt</code> .
<code>\prenotesX</code>	You can want the space before the first printed (in a page) series of familiar notes not to be the same as before other series. Default value is <code>0pt</code> . You can do it with <code>\prenotesX{⟨l⟩}</code> . You can disable this feature by setting the length to <code>0 pt</code> .
<code>\maxhXnotes</code>	By default, one series of critical notes can take 80% of the page size, before being broken to the next page. If you want to change the size use

`\maxhXnotes[⟨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 `\maxhXnotes{.33\textheight}`.

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

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

## 5.5 Page layout

You should set up the page layout parameters, and in particular the `\baselineskip` of the footnotes (this is done for you if you use the standard `\notefontsetup`), before you call any of these macros because their 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.<sup>17</sup>

`Xnoteswidthliketwocolumns`  
`notesXwidthliketwocolumns`

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

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

### 5.5.1 Endnotes in one paragraph

`\Xendparagraph` By default, any new endnote starts a new paragraph. Use `\Xendparagraph[⟨series⟩]` 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{$\parallel$}`.

## 5.6 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.

<sup>17</sup>There is one tiny proviso about using paragraphed notes: you shouldn't force any explicit line-breaks inside such notes: do not use `\par`, `\break`, or `\penalty=-10000`. If you must have a line-break for some obscure reason, just suggest the break very strongly: `\penalty=-9999` will do the trick. 25.5 p. 136 explains why this restriction is necessary.



For those who are setting up for a large job, here is a list of the complete set of `eledmac` 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.

`\endashchar` A relatively trivial matter relates to punctuation. In your footnotes, there will sometimes be spans of line numbers like this: 12–34, or lines with sub-line numbers like this: 55.6. The en-dash and the full stop are taken from the same font as the numbers, and it all works nicely. But what if you wanted to use old-style numbers, like 12 and 34? These look nice in an edition, but when you use the fonts provided by PLAIN T<sub>E</sub>X they are taken from a math font which does not have the en-dash or full stop in the same places as a text font. If you (or your macros) just typed `$\oldstyle 12--34$` or `$\oldstyle 55.6$` you would get ‘12”34’ and ‘55▷6’. So we define `\endashchar` and `\fullstop`, which produce an en-dash and a full stop respectively from the normal document font, whatever font you are using for the numbers. These two macros are used in the macros which format the line numbers in the margins and footnotes, instead of explicit punctuation. We also define an `\rbracket` macro for the right square bracket printed at the end of the lemma in many styles of textual notes (including `eledmac`’s standard style). For polyglossia, when the lemma is RTL, the bracket automatically switches to a left bracket.

`\select@lemmafnt` We will briefly discuss `\select@lemmafnt` 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@lemmafnt` does the work of decoding `eledmac`’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@lemmafnt` 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@lemmafnt` selects the appropriate font for the note using that font specifier.

`eledmac` uses `\select@lemmafnt` 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.

## 5.7 Changing series

### 5.7.1 Create a new series

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

### 5.7.2 Delete series

As the number of series which are defined increases, `eledmac` gets slower. If you do not need all of the six standard series (A, B, C, D, E, Z), 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}
```

### 5.7.3 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, Z. 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.

## 6 Verse

In 1992 Wayne Sullivan<sup>18</sup> wrote the `EDSTANZA` macros [Sul92] for typesetting verse in a critical edition. More specifically they were for handling poetry stanzas which use indentation to indicate rhyme or metre.

With Wayne Sullivan's permission the majority of this section has been taken from [Sul92]. Peter has made a few changes to enable his macros to be used in the `LATEX` `ledmac`, and now in `eledmac`. package.

`\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.

`\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}`.

---

<sup>18</sup>Department of Mathematics, University College, Dublin 4, Ireland

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 on more than one print line, then this first entry should be 0;  $\text{\TeX}$  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 `\hanginsymbol:` see p. 6.4 p. 36.

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.

## 6.1 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 say they are repeated, defining the value of the `stanzaindentsrepetition` counter at  $n$ . For example:

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

is like

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

**Be careful: the feature is changed in eledmac 1.5.1. See Appendix A.3 p. 260.**

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  $\text{\TeX}$ '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.

## 6.2 Manual stanza indent

`\stanzaindent` You can set the indent of some specific verse by calling `\stanzaindent{<value>}`  
`\stanzaindent*` 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`.

### 6.3 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 T<sub>E</sub>X, 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. The control sequence `\endstanzaextra` can be defined to include a penalty. 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.

### 6.4 Hanging symbol

`\hangingsymbol` It’s possible to insert a symbol in each line of hanging verse, as in French typography for ‘[’. To insert in eledmac, redefine macro `\hangingsymbol` with this code:

```
\renewcommand{\hangingsymbol}{[\,}
```

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

```
\renewcommand{\hangingsymbol}{\protect\hfill}
```

## 6.5 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 p. 50 for further details.

## 6.6 Various tools

<code>\ampersand</code>	If you need to print an & symbol in a stanza, use the <code>\ampersand</code> macro, not <code>\&amp;</code> which will end the stanza.
<code>\endstanzaextra</code>	The macro <code>\endstanzaextra</code> , if it is defined, is called at the end of a stanza. You could define this, for example, to add extra space between stanzas (by default there is no extra space between stanzas); if you are using the <code>memoir</code> class, it provides a length <code>\stanzaskip</code> which may come in handy.
<code>\startstanzahook</code>	Similarly, if <code>\startstanzahook</code> is defined, it is called by <code>\stanza</code> at the start. This can be defined to do something.
<code>\flagstanza</code>	Putting <code>\flagstanza[⟨len⟩]{⟨text⟩}</code> at the start of a line in a stanza (or elsewhere) will typeset <code>⟨text⟩</code> at a distance <code>⟨len⟩</code> before the line. The default <code>⟨len⟩</code> is <code>\stanzaindentbase</code> .

For example, to put a verse number before the first line of a stanza you could proceed along the lines:

```
\newcounter{stanzanum}
\setcounter{stanzanum}{0}
\newcommand*{\startstanzahook}{\refstepcounter{stanzanum}}
\newcommand{\numberit}{\flagstanza{\thestanzanum}}
...
\stanza
\numberit First line...&
    rest of stanza&

\stanza
\numberit First line, second stanza...
```

## 6.7 Hanging symbol

<code>\hangingsymbol</code>	It's possible to insert a symbol on each line of hanging verse, as in French typography for ‘[. To insert in <code>eledmac</code> , redefine macro <code>\hangingsymbol</code> with this code:
-----------------------------	--

```
\renewcommand{\hangingsymbol}{[,}
```

## 6.8 Text before/after verses

It is possible to add text, like a subtitle, 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.

## 7 Grouping

In a `minipage` environment  $\text{\LaTeX}$  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 11) in a minipage but unlike with `\footnote` the numbering scheme is unaltered.

`ledgroup` Minipages, of course, aren't 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 `ledgroup` except that you must specify a width for the environment, as with a minipage.  
`\begin{ledgroupsize}[\langle pos \rangle]{\langle width \rangle}`.

The required `\langle width \rangle` argument is the text width for the environment. The optional `\langle pos \rangle` 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}`

## 8 Crop marks

The `eledmac` package does not provide crop marks. These are available with either the memoir class [Wil02] or the `crop` package.

## 9 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.

## 9.1 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 say `\edlabel{toves-3}`, for example.<sup>19</sup>

`\edpageref` Elsewhere in the text, either before or after the `\edlabel`, you can refer to its  
`\edlineref` location via `\edpageref{<lab>}`, or `\edlineref{<lab>}`<sup>20</sup>, `\sublineref{<lab>}`, or  
`\sublineref` `\pstartref{<lab>}`. These commands will produce, respectively, the page, line,  
`\pstartref` sub-line and pstart on which the `\edlabel{<lab>}` command occurred.

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 `LATEX.aux` file. You will need to process your document through `LATEX` twice in order for the references to be resolved.

You will be warned if you say `\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.)

If you want to refer to a word inside an `\edtext{...}{...}` command, the `\edlabel` 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 `\edlabel` 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}}
```

`\xpageref` Where `#1` stands for the reference. However, there are situations in which you'll  
`\xlineref` want `eledmac` to return a number without displaying any warning messages about  
`\xsublineref` undefined labels or the like: if you want to use the reference in a context where  
`\xpstartref` `LATEX` 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. For this situation, three variants of the reference commands, with the `x` prefix, are supplied: `\xpageref`, `\xlineref`, `\xsublineref` and `\xpstartref`. They have these limitations:

<sup>19</sup>More precisely, you should stick to characters in the `TEX` categories of 'letter' and 'other'.

<sup>20</sup>Previously, the `\edlineref` command was `\lineref`. But some packages also define `\lineref`. That is why you should use `\edlineref` instead of `\lineref`. `eledmac` defines `\lineref` as equal to `\edlineref`, except if one package has also defined a `\lineref` command.

- 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 won't be added. (Indeed, it's not a limitation, but a feature.)

`\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., 5.1.4 p. 21 above) and sets the beginning page, line, and sub-line numbers to those of the place where `\edlabel{mouse}` was placed, and the ending numbers to those where `\edlabel{elephant}` occurs.

`\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 say ‘`\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.

## 9.2 Normal L<sup>A</sup>T<sub>E</sub>X cross-referencing

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

## 9.3 References to lines commented in the apparatus

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

`\applabel`      If you use `\applabel{<label>}` inside the second argument of a `\edtext`, `eledmac` 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` (5.1.4 p. 21) to refer to these labels, `eledmac` will use your line settings to refer to the passage.

`\appref`      You can also use `\appref{<label>}` and `\apprefwithpage{<label>}` to refer to these 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.

`\apprefprefixsingle`      If you redefine `\apprefprefixsingle`, its content will be printed before the

`\apprefprefixmore`



line numbers of a `\appref`-reference. If you redefine `\apprefprefixmore`, its content will be printed before the line numbers, if you refer to more than one line.

For example, you may use:

```
\renewcommand{\apprefprefixsingle}{line~}
\renewcommand{\apprefprefixmore}{lines~}
```

Note that if `\apprefprefixmore` is empty, `\apprefprefixsingle` will be used in any case.

`\twolinesappref`      If you use `\twolines`, `\morethantwolines`, `\twolinesbutnotmore` and/or  
`\morethantwolinesappref`      `\twolinesonlyinsamepage` (5.4.1 p. 25) *without the optional series argument*,  
`\twolinesbutnotmoreappref`      the setting will also be available for `\appref`.  
`\twolinesonlyinsamepage`

The commands `\twolinesappref{<text>}`, `\morethantwolinesappref{<text>}`, `\twolinesbutnotmoreappref` `\twolinesonlyinsamepageappref` can also be used, if you only want to change the reference style of `\appref`.

It is possible to disable this setting for a specific `\appref` command by using `\appref[fulllines]{<label>}`.

`\endtwolinesapprefwithpage`      If you use one of `\Xendtwolines`, `\Xendmorethantwolines`, `\Xendtwolinesbutnotmore`,  
`\endmorethantwolinesapprefwithpage`      `\Xendtwolinesonlyinsamepage` (5.4.1 p. 26) *without the optional series argu-*  
`\endtwolinesbutnotmoreapprefwithpage`      *ment*, the setting will also be available for `\apprefwithpage`.  
`\endtwolinesonlyinsamepageapprefwithpage`

The commands `\Xendtwolinesappref{<text>}`, `\Xendmorethantwolinesappref{<text>}`, `\Xendtwolinesbutnotmoreappref`, `\Xendtwolinesonlyinsamepageappref` can also be used, if you only want to change the reference style of `\apprefwithpage`.

It is possible to disable this setting for a specific `\apprefwithpage` command by using `\apprefwithpage[fulllines]{<label>}`.

## 10 Side notes

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  
`\ledouternote`      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  
`\ledrightnote`      current setting of `\sidenotemargin{<location>}`. The permissible value for  
`\ledsidenote`      `<location>` is one out of the list `left`, `right`, `inner`, or `outer`, for example  
`\sidenotemargin`      `\sidenotemargin{outer}`. The package's default setting is  
`\sidenotemargin{right}`

to typeset `\ledsidenotes` in the right hand margin. This is the opposite to 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, say, `\ledleftnote`, commands are called in the same line the second `<text>` will obliterate the first. There is no problem though with having both a left and a right sidenote on the same line.

`\ledlsnotewidth`      The left sidenote text is put into a box of width `\ledlsnotewidth` and the  
`\ledrsnotewidth`

right text into a box of width `\ledrsnotewidth`. These are initially set to the value of `\marginparwidth`.

`\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).

`\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`.

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

`\ledrsnotefontsetup`

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

These can of course be changed to suit.

`\sidenotesep` 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 redefine the macro `\sidenotesep`.

## 11 Familiar 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 `eledmac` 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.

`\footnoteA` As well as the standard L<sup>A</sup>T<sub>E</sub>X footnotes generated via `\footnote`, the package also provides six series of additional footnotes called `\footnoteA` through `\footnoteZ`. 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.

`\footnormalX` Each of the `\foot...X` macros takes one argument which is the series letter (e.g., B). `\footnormalX` is the typical footnote format. With `\footparagraphX` the series is typeset as one paragraph, with `\foottwocolX` the notes are set in two columns, and are set in three columns with `\footthreecolX`.

`\thefootnoteA` As well as using the `\foot...X` macros to specify the general footnote arrangement for a series, each series uses a set of macros for styling the marks. The mark numbering scheme is defined by the `\thefootnoteA` macro; the default is:

```
\renewcommand*{\thefootnoteA}{\arabic{footnoteA}}
```

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.

Additional footnote series can be easily defined: you just have to use `\newseries`, defined above (see 5.7.1 p. 34).

## 11.1 Position of the familiar footnotes

`\fnpos` There is a historical incoherence in (e)ledmac. The familiar footnotes are before the critical footnotes in a normal page, but after in a minipage or in a ledgroup. `\mpfnpos` 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}
```

## 12 Indexing

`\edindex` L<sup>A</sup>T<sub>E</sub>X provides the `\index{⟨item⟩}` command for specifying that `⟨item⟩` 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 `⟨item⟩` and the current page & linenumber 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 eledmac. That means you must first run three times (Xe/Lua)L<sup>A</sup>T<sub>E</sub>X, then run `makeindex` and finally run again (Xe/Lua)L<sup>A</sup>T<sub>E</sub>X to get an index with the right page numbers.

If the memoir class or 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 eledmac.

3. Declare the index with the macro `\makeindex` of `imakeidx/indextools`.

`\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 ":"
```

`\edindexlab` Read the MAKEINDEX program's handbook about the `.ist` file. The `\edindex` process uses a `\label/\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.

## 12.1 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 `eledmac` lines numbers in parenthesis, in order to make a better distinction between line numbers and page ranges.

In any case, you must load `eledmac` 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 `eledmac-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 `eledmac` package. When you run (Xe/Lua)LaTeX 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`.

<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>.

2. Use `hyperindex=false` option when loading `hyperref`.
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>.

## 13 Tabular material

L<sup>A</sup>T<sub>E</sub>X’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, `eledmac` provides some simple tabulation environments that can be line numbered. The environments can also be used in normal unnumbered text.

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.

```

edarrayl      \begin{edtabularc}
edarrayc      1 & 2 & 3 \\
edarrayr      a & bb & ccc \\
edtabularl    AAA & BB & C
edtabularc    \end{edtabularc}
edtabularr

```

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  $\mathcal{E}$ ) 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 &
& 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.

```

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

```
\end{edtabularr}
\pend
\endnumbering
```

produces the following parallel pair of verses.

1	<b>I</b> wish I was a little bug	<b>I</b> 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}
```

1	2	3	4
$F$	$+$	$G$	$+C$
<i>a</i>	<i>bb</i>	<i>ccc</i>	<i>dddd</i>

`\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          & & 1      & co & ghweropjklmnbvcxys \\
1          & 2      & 3      & \edrowfill{4}{5}{\hrulefill} & \\
\end{edtabularr}
```

1	2	3	4	5
Q		fd	h	qwertziohg
v	wptz	x	y	vb
g	nnn	$\overbrace{\hspace{10em}}$		
$\underbrace{\hspace{10em}}$		pq	dgh	
k		1	co	ghweropjklmnbvcxys
1	2	3	<hr/>	



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

`\edvertline`      The macro `\edvertline{⟨height⟩}` draws a vertical line *⟨height⟩* 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` (4.2.2 p. 13):

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

The line which contains them won't be numbered, and you can't add critical notes inside.

### 14.2 Sectioning commands with line numbering and critical notes

In the past (between versions 1.1.0 and 1.12.0), these following commands were provided:



- `\ledchapter[⟨text⟩]{⟨critical text⟩}`
- `\ledchapter*`
- `\ledsection[⟨text⟩]{⟨critical text⟩}`
- `\ledsection*`
- `\ledsubsection[⟨text⟩]{⟨critical text⟩}`
- `\ledsubsection*`
- `\ledsubsubsection[⟨text⟩]{⟨critical text⟩}`
- `\ledsubsubsection*`

These commands are deprecated, and won't be maintained anymore, because of a bad concept. Since version 1.12.0, 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*`

Which are equivalent to the L<sup>A</sup>T<sub>E</sub>X 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
```

At the first run, you will see only the text. It's normal. At the second run, you will see the formatting. And consequently, at the third run, you will see the table of contents.

For technical reasons, the page break before `\elechapter` can't be added automatically. You have to insert it manually via `\beforeeledchapter`, which must be called outside of a numbered section. If you aren't going to have any `\eledxxx` commands, then load `eledmac` with `\noeledsec` option. That will suppress the generation of unneeded `.eledsec` file, keep memory and make `eledmac` faster.

## 15 Quotation environments

The `quotation` and `quote` environment can be used so that 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 `\start-\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 don't 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

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

- `\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, the 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, the l. 444 will be at the p.  $n$  and the l. 445 will be at the p.  $n + 1$ .

If you are using `eledpar` 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 run out of sync. 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 `\lednopbinversetrue` in the beginning of your file (better: in your preamble). This feature works only with verse of 2 lines, not more. It works at the third run, or at fourth run with `eledpar`. By default, when a long verse runs normally 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

In general, `eledmac`’s system for adding marginal line numbers breaks anything that makes direct use of the `LATEX` 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.

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

`\ballast` `LATEX` 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, `eledmac` 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, say

```
\setcounter{ballast}{100}
```

or some such figure, and with any luck the page breaks will settle down. Luckily, this problem doesn’t crop up at all often.

The restriction on explicit line-breaking in paragraphed footnotes, mentioned in a footnote 17 p. 32, and described in more detail on 25.5 p. 136, 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.

L<sup>A</sup>T<sub>E</sub>X has a reputation for putting things in the wrong margin after a page break. The `eledmac` package does nothing to improve the situation — in fact it just makes it more obvious if numbered text crosses a page (or column) boundary and the numbers are meant to flip from side to side. Try and keep the numbers in the same margin all the time. Another aspect of TeX's page breaking mechanism is that when numbering lines by the page, the first few numbers after a page break may continue as though the lines were still on the previous page.

`\pageparbreak`

If you can't resist flipping the numbers or numbering by the page, then you might find that judicious use of `\pageparbreak` may help if numbering goes awry across a page (or column) break. It tries to force TeX into partitioning the current paragraph into two invisibly joined paragraphs with a page break between them. Insert the command between the last word on one page and the first word on the next page. If later you change something earlier in the document the natural page break may be in a different place, and you will have to adjust the location of `\pageparbreak` accordingly.

`\footfudgefiddle`

For paragraphed footnotes T<sub>E</sub>X 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}
```

Help, suggestions and corrections will be gratefully received.

## 17.2 Use with other packages

Because of `eledmac`'s complexity it may not play well with other packages. In particular `eledmac` is sensitive to commands in the arguments to the `\edtext` and `\*footnote` macros (this is discussed in more detail in section 22, 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.

It is possible that `eledmac` and the `hyperref` package may work together. I have not tried this combination but past experience with `hyperref` suggests that cooperation is unlikely; `hyperref` changes many L<sup>A</sup>T<sub>E</sub>X internals and `eledmac` does things that are not normally seen in L<sup>A</sup>T<sub>E</sub>X.

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

`\morenoexpands`

You can define the macro `\morenoexpands` to modify macros that you call within `\edtext`. Because of the way `eledmac` 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 L<sup>A</sup>T<sub>E</sub>X 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 L<sup>A</sup>T<sub>E</sub>X 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 me 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.

### 17.3 Parallel typesetting

Peter Wilson has developed the `Ledpar` package as an extension to `eledmac` specifically for parallel typesetting of critical texts. This also cooperates with the `babel` / `polyglossia` packages for typesetting in multiple languages. The package has been called *eledpar* since September 2012.

He 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

---

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

## 18 Implementation overview

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

We begin with the commands you use to start and stop line numbering in a section of text (Section 19). 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 21); 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 22), followed by the macros that take each paragraph apart, attach the line numbers and insertions, and send the result to the vertical list (Section 23). The footnote commands (Section 25) and output routine (Section 36) finish the main part of the processing; cross-referencing (Section 37) and endnotes (Section 32) complete the story.

In what follows, macros with an `@` in their name are more internal to the workings of `eledmac` 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.

## 19 Preliminaries

We try and use `l@d` in macro names to help avoid name clashes, but this is not a hard and fast rule. For example, if an original `EDMAC` macro includes `edmac` We will simply change that to `eledmac`.

Announce the name and version of the package, which is targetted for  $\text{\LaTeX}2\epsilon$ .

```
1 (*code)
2 \NeedsTeXFormat{LaTeX2e}
3 \ProvidesPackage{eledmac}[2015/06/21 v1.24.1 LaTeX port of EDMAC]%
```

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

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

## 19.1 Package options

`\ifledfinal` Use this to remember which option is used, set and execute the options with final as the default.

```

\ifoldprintnpnumspace@
\ifnocritical@      4 \newif\ifledfinal
\if@noeled@sec      5 \newif\ifoldprintnpnumspace@
\ifnoend@           6 \newif\ifnocritical@%
\ifnofamiliar@      7 \newif\if@noeled@sec%
\ifnoledgroup@      8 \newif\ifnoend@%
\ifparapparatus@    9 \newif\ifnofamiliar@%
\ifnoquotation@    10 \newif\ifnoledgroup@%
\iflednopbinverse   11 \newif\ifparapparatus@
\ifparledgroup      12 \newif\ifnoquotation@
\ifwidthliketwocolumns 13 \newif\iflednopbinverse
\ifledsecnolinenumber 14 \newif\ifparledgroup
\ifxindy@           15 \newif\ifwidthliketwocolumns%
\ifxindyhyperref@  16 \newif\ifledsecnolinenumber
\ifxindyhyperref@  17 \newif\ifxindy@
\ifxindyhyperref@  18 \newif\ifxindyhyperref@
\parapparatus@false 19 \parapparatus@false
\RequirePackage{xkeyval}
\DeclareOptionX{series}[A,B,C,D,E,Z]{\xdef\default@series{#1}}
\DeclareOptionX{noeledsec}{\@noeled@sectrue}
\DeclareOptionX{nocritical}{\nocritical@true}%
\DeclareOptionX{nofamiliar}{\nofamiliar@true}%
\DeclareOptionX{noledgroup}{\noledgroup@true}%
\DeclareOptionX{noend}{%
27 \let\l@dend@open\@gobble%
28 \let\l@d@end\relax
29 \let\l@dend@close\relax%
30 \global\let\l@dend@stuff=\relax%
31 \global\chardef\l@d@end=16%
32 \noend@true%
33 }%
\DeclareOptionX{noquotation}{\noquotation@true}
\DeclareOptionX{oldprintnpnumspace}{\oldprintnpnumspace@true}
\DeclareOptionX{final}{\ledfinaltrue}
\DeclareOptionX{draft}{\ledfinalfalse}
\DeclareOptionX{parapparatus}{\parapparatus@true}
\DeclareOptionX{nopbinverse}{\lednopbinversetrue}
\DeclareOptionX{ledsecnolinenumber}{\ledsecnolinenumbertrue}
\DeclareOptionX{widthliketwocolumns}{\widthliketwocolumnstrue}%
\DeclareOptionX{xindy}[eledmac-markup-attr.xdy]{%
43 \AtBeginDocument{\immediate\openout\eledmac@xindy@out=#1}%
44 \newwrite\eledmac@xindy@out%
45 \xindy@true%
46 \gdef\eledmacmarkuplocdepth{:depth 1}%
47 \AtEndDocument{\immediate\closeout\eledmac@xindy@out}%
48 }%
\DeclareOptionX{xindy+hyperref}{%

```

```

50 \xindyhyperref@true%
51 }%
52 \ExecuteOptionsX{series}%
53 \ExecuteOptionsX{final}

```

Use the starred form of `\ProcessOptions` 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.

```

54 \ProcessOptionsX*\relax
55

```

## 19.2 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 for paragraphed notes.

```

56 \RequirePackage{xargs}
57 \RequirePackage{etoolbox}
58 \RequirePackage{etex}
59 \reserveinserts{32}
60 \RequirePackage{suffix}
61 \RequirePackage{xstring}
62 \RequirePackage{ifluatex}
63 \RequirePackage{ragged2e}
64 \RequirePackage{ragged2e}
65 \RequirePackage{ifxetex}%

```

## 19.3 Boolean flags

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

```

66 \newif\ifl@dmemoir
67 \@ifclassloaded{memoir}{\l@dmemoirtrue}{\l@dmemoirfalse}
68

```

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

```

69 \newif\ifl@imakeidx
70 \@ifpackageloaded{imakeidx}{\l@imakeidxtrue}{\l@imakeidxfalse}%False is the default value

```

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

```

71 \newif\ifl@indextools%
72 \@ifpackageloaded{indextools}{\l@indextoolstrue}%
73 \l@imakeidxtrue%
74 \let\imki@wrindexentry\indtl@wrindexentry%
75 \let\imki@wrindexentry\indtl@wrindexentry%
76 \l@imakeidxtrue}%False is the default value. We consider indextools as a variant of imakeidx. That's why w

```



`\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.

```
77 \ifdef{\if@RTL}{\newif\if@RTL}
```

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

```
78 \ifdef{\if@RTL}{\newif\if@RTL}
```

## 19.4 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.

`\eledmac@warning` Write a warning message.

```
79 \newcommand{\eledmac@warning}[1]{\PackageWarning{eledmac}{#1}}
```

`\eledmac@error` Write an error message.

```
80 \newcommand{\eledmac@error}[2]{\PackageError{eledmac}{#1}{#2}}
```

`\led@err@NumberingStarted`

`d@err@NumberingNotStarted`

`umberingShouldHaveStarted`

```
81 \newcommand*\led@err@NumberingStarted{%
```

```
82 \eledmac@error{Numbering has already been started}{\@ehc}}
```

```
83 \newcommand*\led@err@NumberingNotStarted{%
```

```
84 \eledmac@error{Numbering was not started}{\@ehc}}
```

```
85 \newcommand*\led@err@NumberingShouldHaveStarted{%
```

```
86 \eledmac@error{Numbering should already have been started}{\@ehc}}
```

`d@err@edtextoutsidepstart`

```
87 \newcommand*\led@err@edtextoutsidepstart{%
```

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

`\led@mess@NotesChanged`

```
89 \newcommand*\led@mess@NotesChanged{%
```

```
90 \typeout{eledmac reminder: }%
```

```
91 \typeout{ The number of the footnotes in this section
```

```
92 has changed since the last run.}%
```

```
93 \typeout{ You will need to run LaTeX two more times
```

```
94 before the footnote placement}%
```

```
95 \typeout{ and line numbering in this section are
```

```
96 correct.}}
```

`\led@mess@SectionContinued`

```
97 \newcommand*\led@mess@SectionContinued}[1]{%
```

```
98 \message{Section #1 (continuing the previous section)}}%
```

`d@err@LineationInNumbered`

```
99 \newcommand*\led@err@LineationInNumbered{%
```

```
100 \eledmac@error{You can't use \string\lineation\space within
```

```
101 a numbered section}{\@ehc}}
```

```

\led@warn@BadLineation
\led@warn@BadLinenummargin 102 \newcommand*{\led@warn@BadLineation}{%
\led@warn@BadLockdisp 103 \eledmac@warning{Bad \string\lineation\space argument}}
\led@warn@BadSubblockdisp 104 \newcommand*{\led@warn@BadLinenummargin}{%
105 \eledmac@warning{Bad \string\linenummargin\space argument}}
106 \newcommand*{\led@warn@BadLockdisp}{%
107 \eledmac@warning{Bad \string\lockdisp\space argument}}
108 \newcommand*{\led@warn@BadSubblockdisp}{%
109 \eledmac@warning{Bad \string\subblockdisp\space argument}}

\led@warn@NoLineFile
110 \newcommand*{\led@warn@NoLineFile}[1]{%
111 \eledmac@warning{Can't find line-list file #1}}

\led@warn@LineFileObsolete
112 \newcommand*{\led@warn@Obsolete}[1]{%
113 \eledmac@warning{Line-list file #1 was obsolete. We have not read it. Please run LaTeX again}}

\led@warn@BadAdvancelineSubline
\led@warn@BadAdvancelineLine 114 \newcommand*{\led@warn@BadAdvancelineSubline}{%
115 \eledmac@warning{\string\advanceline\space produced a sub-line
116 number less than zero.}}
117 \newcommand*{\led@warn@BadAdvancelineLine}{%
118 \eledmac@warning{\string\advanceline\space produced a line
119 number less than zero.}}

\led@warn@BadSetline
\led@warn@BadSetlinenum 120 \newcommand*{\led@warn@BadSetline}{%
121 \eledmac@warning{Bad \string\setline\space argument}}
122 \newcommand*{\led@warn@BadSetlinenum}{%
123 \eledmac@warning{Bad \string\setlinenum\space argument}}

\led@err@PstartNotNumbered
\led@err@PstartInPstart 124 \newcommand*{\led@err@PstartNotNumbered}{%
\led@err@PendNotNumbered 125 \eledmac@error{\string\pstart\space must be used within a
\led@err@PendNoPstart 126 numbered section}{\@ehc}}
\led@err@AutoparNotNumbered 127 \newcommand*{\led@err@PstartInPstart}{%
\led@err@NumberingWithoutPstart 128 \eledmac@error{\string\pstart\space encountered while another
129 \string\pstart\space was in effect}{\@ehc}}
130 \newcommand*{\led@err@PendNotNumbered}{%
131 \eledmac@error{\string\pend\space must be used within a
132 numbered section}{\@ehc}}
133 \newcommand*{\led@err@PendNoPstart}{%
134 \eledmac@error{\string\pend\space must follow a \string\pstart}{\@ehc}}
135 \newcommand*{\led@err@AutoparNotNumbered}{%
136 \eledmac@error{\string\autopar\space must be used within a
137 numbered section}{\@ehc}}
138 \newcommand*{\led@err@NumberingWithoutPstart}{%
139 \eledmac@error{\string\beginnumbering...\string\endnumbering\space without \string\pstart

```

```

\led@warn@BadAction
140 \newcommand*{\led@warn@BadAction}{%
141 \eledmac@warning{Bad action code, value \next@action.}}

\led@warn@DuplicateLabel
\led@warn@AppLabelOutEdtext 142 \newcommand*{\led@warn@DuplicateLabel}[1]{%
\led@warn@RefUndefined 143 \eledmac@warning{Duplicate definition of label `#1' on page \the\pageno.}}
144 \newcommand*{\led@warn@AppLabelOutEdtext}[1]{%
145 \eledmac@warning{\string\applabel\space outside of \string\edtext\space `#1' on page \the\pageno.}}%
146 \newcommand*{\led@warn@RefUndefined}[1]{%
147 \eledmac@warning{Reference `#1' on page \the\pageno\space undefined.
148 Using `000'.}}

\led@warn@NoMarginpars
149 \newcommand*{\led@warn@NoMarginpars}{%
150 \eledmac@warning{You can't use \string\marginpar\space in numbered text}}

\led@warn@BadSidenotemargin
151 \newcommand*{\led@warn@BadSidenotemargin}{%
152 \eledmac@warning{Bad \string\sidenotemmargin\space argument}}

\led@warn@NoIndexFile
153 \newcommand*{\led@warn@NoIndexFile}[1]{%
154 \eledmac@warning{Undefined index file #1}}

\led@warn@AddfootinsXobsolete
\led@warn@Addfootinsobsolete 155 \newcommand{\led@warn@AddfootinsXobsolete}{%
156 \eledmac@warning{AddfootinsX is obsolete in eledmac 1.0. Use newseries instead.}}%
157 }%
158 \newcommand{\led@warn@AddfootinsObsolete}{%
159 \eledmac@warning{Addfootins is obsolete in eledmac 1.0. Use newseries instead.}}%
160 }%

\led@warn@SeriesStillExist
161 \newcommand{\led@warn@SeriesStillExist}[1]{%
162 \eledmac@warning{Series #1 is still existing !}}%
163 }%

\led@err@ManySidenotes
\led@err@ManyLeftnotes 164 \newcommand{\led@err@ManySidenotes}{%
\led@err@ManyRightnotes 165 \ifledRcol%
166 \eledmac@warning{\itemcount@\space sidenotes on line \the\line@numR\space p. \the\page@numR}%
167 \else%
168 \eledmac@warning{\itemcount@\space sidenotes on line \the\line@num\space p. \the\page@num}%
169 \fi%
170 }%
171 \newcommand{\led@err@ManyLeftnotes}{%
172 \ifledRcol%

```

```

173 \eledmac@warning{\itemcount@\space leftnotes on line \the\line@numR\space p. \the\page@nu
174 \else%
175 \eledmac@warning{\itemcount@\space leftnotes on line \the\line@num\space p. \the\page@nu
176 \fi%
177 }%
178 \newcommand{\led@err@ManyRightnotes}{%
179 \ifledRcol%
180 \eledmac@warning{\itemcount@\space rightnotes on line \the\line@numR\space p. \the\page@nu
181 \else%
182 \eledmac@warning{\itemcount@\space rightnotes on line \the\line@num\space p. \the\page@nu
183 \fi%
184 }%

\led@war@ledsetnormalparstuffDeprecated
\led@war@noeledsecDeprecated 185 \newcommand{\led@war@noeledsecDeprecated}[0]{%
\led@war@FalseverseDeprecated 186 \eledmac@warning{\string\noeledsec\space deprecated. Use `noeledsec` option instead.}%
\led@war@ledxxxDeprecated 187 }%
\led@war@noendnotesDeprecated 188 \newcommand{\led@war@ledsetnormalparstuffDeprecated}{%
189 \eledmac@warning{\string\ledsetnormalparstuff\space deprecated. Look at \string\Xledsetnor
190 }%
191 \newcommand{\led@war@ledxxxDeprecated}[1]{%
192 \eledmac@warning{\string\led#1\space deprecated. Look at \string\led#1 instead.}%
193 }%
194 \newcommand{\led@war@noendnotesDeprecated}[0]{%
195 \eledmac@warning{\string\noendnotes\space deprecated. Use `noend` option instead.}%
196 }%

\led@err@TooManyColumns
\led@err@UnequalColumns 197 \newcommand*{\led@err@TooManyColumns}{%
\led@err@LowStartColumn 198 \eledmac@error{Too many columns}{\@ehc}}
\led@err@HighEndColumn 199 \newcommand*{\led@err@UnequalColumns}{%
\led@err@ReverseColumns 200 \eledmac@error{Number of columns is not equal to the number
201 in the previous row (or \protect\\ \space forgotten?)}{\@ehc}}
202 \newcommand*{\led@err@LowStartColumn}{%
203 \eledmac@error{Start column is too low}{\@ehc}}
204 \newcommand*{\led@err@HighEndColumn}{%
205 \eledmac@error{End column is too high}{\@ehc}}
206 \newcommand*{\led@err@ReverseColumns}{%
207 \eledmac@error{Start column is greater than end column}{\@ehc}}

\led@err@EdtextWithoutFootnote
208 \newcommand{\led@err@EdtextWithoutFootnote}{%
209 \eledmac@error{edtext without Xfootnote. Check syntax.}{\@ehd}%
210 }%

\led@err@FootnoteWithoutEdtext
211 \newcommand{\led@err@FootnoteWithoutEdtext}{%
212 \eledmac@error{Xfootnote without edtext. Check syntax.}{\@ehd}%
213 }%

```

```
ror@ImakeidxAfterEledmac
```

```
214 \newcommand{\led@error@ImakeidxAfterEledmac}{%
215   \eledmac@error{Imakeidx must be loaded before eledmac.}\@ehd}%
216 }%
```

```
or@IndextoolsAfterEledmac
```

```
217 \newcommand{\led@error@IndextoolsAfterEledmac}{%
218   \eledmac@error{Indextools must be loaded before eledmac.}\@ehd}%
219 }%
```

## 19.5 Gobbling

```
\@gobblethree
\@gobblefour 220 \providecommand*\@gobblethree}[3]{%
221 \providecommand*\@gobblefour}[4]{%
222 \providecommand*\@gobblefive}[5]{%
```

Here, we define some commands which gobble their arguments.

## 19.6 Miscellaneous commands

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

```
223 \ifledfinal
224   \newcommand*\showlemma}[1]{#1}
225 \else
226   \newcommand*\showlemma}[1]{\underline{#1}}
227 \fi
228
```

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

Initialize it as `\empty`

```
229 \let\linenumberlist=\empty
230
```

`\@l@tempcnta` In imitation of L<sup>A</sup>T<sub>E</sub>X, we create a couple of scratch counters.

`\@l@tempcntb` L<sup>A</sup>T<sub>E</sub>X 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).

```
231 \newcount\@l@tempcnta \newcount\@l@tempcntb
```

## 20 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

<p><code>\extensionchars</code></p> <p style="margin-top: 100px;"><code>\ifnumbering</code></p> <p><code>\numberingtrue</code></p> <p><code>\numberingfalse</code></p> <p style="margin-top: 10px;"><code>235 \newif\ifnumbering</code></p> <p style="margin-top: 10px;"><code>\ifnumberingR</code></p> <p><code>\ifl@dpairing</code></p> <p><code>\ifl@dpaging</code></p> <p><code>\l@dpagingtrue</code></p> <p><code>\l@dpagingfalse</code></p> <p><code>\ifl@dprintingpages</code></p> <p><code>\dprintingpagestrue</code></p> <p><code>\dprintingpagesfalse</code></p> <p><code>\fl@dprintingcolumns</code></p> <p><code>\dprintingcolumnstrue</code></p> <p><code>\dprintingcolumnsfalse</code></p> <p><code>\l@dpairingtrue</code></p> <p><code>\l@dpairingfalse</code></p> <p><code>\ifpst@rtedL</code></p> <p><code>\pst@rtedLtrue</code></p> <p><code>\pst@rtedLfalse</code></p> <p><code>\l@dnumpststartsL</code></p> <p><code>\ifledRcol</code></p> <p><code>\beginnumbering@reg</code></p> <p><code>\initnumbering@reg</code></p>	<p>Each section will read and write an associated ‘line-list file’, containing information used to do the numbering; the file will be called <code>&lt;jobname&gt;.nn</code>, where <b>nn</b> is the section number. However, you may direct that an extra string be added before the <b>nn</b> in that filename, in order to distinguish these temporary files from others: that string is called <code>\extensionchars</code>. Initially it’s empty, since different operating systems have greatly varying ideas about what characters are permitted in file names. So <code>\renewcommand{\extensionchars}{-}</code> gives temporary files called <code>jobname.-1</code>, <code>jobname.-2</code>, etc.</p> <p><code>232 \newcount\section@num</code></p> <p><code>233 \section@num=0</code></p> <p><code>234 \let\extensionchars=\empty</code></p> <p>The <code>\ifnumbering</code> flag is set to <b>true</b> if we’re within a numbered section (that is, between <code>\beginnumbering</code> and <code>\endnumbering</code>). You can use <code>\ifnumbering</code> in your own code to check whether you’re in a numbered section, but don’t change the flag’s value.</p> <p><code>235 \newif\ifnumbering</code></p> <p>In preparation for the <code>eledpar</code> package, these are related to the ‘left’ text of parallel texts (when <code>\ifl@dpairing</code> is <b>TRUE</b>). They are explained in the <code>eledpar</code> manual.</p> <p><code>236 \newif\ifl@dpairing</code></p> <p><code>237 \newif\ifl@dpaging%</code></p> <p><code>238 \newif\ifl@dprintingpages%</code></p> <p><code>239 \newif\ifl@dprintingcolumns%</code></p> <p><code>240 \newif\ifpst@rtedL</code></p> <p><code>241 \newcount\l@dnumpststartsL</code></p> <p><code>\ifledRcol</code> is set to <b>true</b> in the <b>Rightside</b> environment. It must be distinguished from <code>\ifledRcol@</code> which is set to <b>true</b> when a right line is processed, in <code>\Pages</code> or <code>\Columns</code>.</p> <p><code>242 \newif\ifledRcol</code></p> <p><code>243 \newif\ifledRcol@</code></p> <p>The <code>\ifnumberingR</code> flag is set to <b>true</b> if we’re within a right text numbered section.</p> <p><code>244 \newif\ifnumberingR</code></p> <p><code>\beginnumbering</code> begins a section of numbered text. When it’s 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.</p> <p>The initializations here are trickier than they look. <code>\line@list@stuff</code> will use all of the counters that are zeroed here when it assembles the line-list and</p>
---	--

other lists of information about the lineation. But it will do all of this locally and within a group, and when it's 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@dnumpstartsL — the number of chunks to be processed.
- set \ifpst@rtedL to FALSE.

```

245 \newcommand*{\beginnumbering}{%
246   \ifnumbering
247     \led@err@NumberingStarted
248     \endnumbering
249   \fi
250   \global\numberingtrue
251   \global\advance\section@num \@ne
252   \initnumbering@reg
253   \message{Section \the\section@num }%
254   \line@list@stuff{\jobname.\extensionchars\the\section@num}%
255   \l@dend@stuff
256   \setcounter{pstart}{1}
257   \ifl@dpairing
258     \global\l@dnumpstartsL \z@
259     \global\pst@rtedLfalse

```

The tools for section's title commands are called:

- Define old (deprecated) sectioning commands.
- 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.

```

260 \else
261   \begingroup
262   \initnumbering@sectcmd
263   \ifwidthliketwocolumns%
264     \csuse{setwidthliketwocolumns@\columns@position}%
265     \csuse{setpositionliketwocolumns@\columns@position}%
266   \fi%
267 \fi
268 \gdef\eled@sections@{ }%
269 \if@noeled@sec\else%
270   \makeatletter\InputIfFileExists{\jobname.eledsec\the\section@num}{ }{\makeatother}%
271   \immediate\openout\eled@sectioning@out=\jobname.eledsec\the\section@num\relax%
272   \fi%
273 }

```

```

274 \newcommand*{\initnumbering@reg}{%
275   \global\pst@rtedLfalse
276   \global\l@dnumstartsL \z@
277   \global\absline@num \z@
278   \gdef\normal@page@break{}
279   \gdef\l@prev@pb{}
280   \gdef\l@prev@nopb{}
281   \global\line@num \z@
282   \global\subline@num \z@
283   \global\@lock \z@
284   \global\sub@lock \z@
285   \global\sublines@false
286   \global\let\next@page@num=\relax
287   \global\let\sub@change=\relax
288   \resetprevline@
289   \resetprevpage@num
290 }
291

```

`\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.

```

292 \def\endnumbering{%
293   \ifnumbering
294     \global\numberingfalse
295     \normal@pars
296     \ifnum\l@dnumstartsL=0%
297       \led@err@NumberingWithoutPstart%
298     \fi%
299     \ifl@dpairing
300       \global\pst@rtedLfalse
301     \else
302       \ifx\insertlines@list\empty\else
303         \global\noteschanged@true
304       \fi
305       \ifx\line@list\empty\else
306         \global\noteschanged@true
307       \fi
308     \fi
309     \ifnoteschanged@
310       \led@mess@NotesChanged
311     \fi
312   \else
313     \led@err@NumberingNotStarted
314   \fi
315   \autoparfalse
316   \if@noeled@sec\else%
317     \immediate\closeout\eled@sectioning@out%
318   \fi%
319   \ifl@dpairing\else

```



```

320   \global\l@dnumpstartsL=\z@%
321   \endgroup
322   \fi
323 }

```

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

```

324 \newcommand{\pausenumbering}{%
325   \ifautopar\global\autopar@pausetrue\fi%
326   \endnumbering\global\numberingtrue}

```

The `\resumenumbers` 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 `\resumenumbers` to ensure that `\pausenumbering` was actually invoked.

```

327 \newcommand*{\resumenumbers}{%
328   \ifnumbering
329     \ifautopar@pause\autopar\fi
330     \global\pst@rtedLtrue
331     \global\advance\section@num \@ne
332     \led@mess@SectionContinued{\the\section@num}%
333     \line@list@stuff{\jobname.\extensionchars\the\section@num}%
334     \l@dend@stuff
335     \ifl@dpairing\else%
336       \begingroup%
337       \initnumbering@sectcmd%
338       \ifwidthliketwocolumns%
339         \csuse{setwidthliketwocolumns@}\columns@position}%
340         \csuse{setpositionliketwocolumns@}\columns@position}%
341       \fi%
342     \fi%
343   \else
344     \led@err@NumberingShouldHaveStarted
345     \endnumbering
346     \beginnumbering
347   \fi}
348
349

```

## 21 Line counting

### 21.1 Choosing the system of lineation

Sometimes you want line numbers that start at 1 at the top of each page; sometimes you want line numbers that start at 1 at each `\pstart`; other times you want line numbers that start at 1 at the start of each section and increase regardless of page breaks. `eledmac` can do it either way, and you can switch from one to the other

---

<sup>25</sup>Our thanks to Wayne Sullivan, who suggested the idea behind these macros.

within one work. But you have to choose one or the other for all line numbers and line references within each section. Here we will define internal codes for these systems and the macros you use to select them.

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

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

`\bypstart@true`  
`\bypstart@false`  
`\ifbypage@`  
`\bypage@true`  
`\bypage@false`

eledmac will use the line-of-section system unless instructed otherwise.

```

350 \newif\ifbypage@
351 \newif\ifbypstart@

```

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

```

352 \newcommand*{\lineation}[1]{%
353   \ifnumbering
354     \led@err@LineationInNumbered
355   \else
356     \def\@tempa{#1}\def\@tempb{page}%
357     \ifx\@tempa\@tempb
358       \global\bypage@true
359       \global\bypstart@false
360       \unless\ifnocritical@%
361         \pstartinfootnote[] [false]%
362       \fi%
363     \else
364       \def\@tempb{pstart}%
365       \ifx\@tempa\@tempb
366         \global\bypage@false
367         \global\bypstart@true
368         \unless\ifnocritical@%
369           \pstartinfootnote%
370         \fi%
371       \else
372         \def\@tempb{section}
373         \ifx\@tempa\@tempb
374           \global\bypage@false
375           \global\bypstart@false
376           \unless\ifnocritical@%
377             \pstartinfootnote[] [false]%
378           \fi%
379         \else
380           \led@warn@BadLineation
381         \fi
382       \fi
383     \fi
384   \fi}}

```

`\linenummargin` You call `\linenummargin{<word>}` to specify which margin you want your line numbers in; it takes one argument, a string. You can put the line numbers in the same margin on every page using `left` or `right`; or you can use `inner` or `outer` to get them in the inner or outer margins. (These last two options assume that even-numbered pages will be on the left-hand side of every opening in your book.) You can change this within a numbered section, but the change may not take effect just when you'd like; if it's done between paragraphs nothing surprising should happen.

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

```

385 \newcount\line@margin
386 \newcommand*\linenummargin}[1]{%
387   \l@getline@margin{#1}%
388   \ifnum\@l@dttempcntb>\m@ne
389     \global\line@margin=\@l@dttempcntb
390   \fi}%
391 \newcommand*\l@getline@margin}[1]{%
392   \def\@tempa{#1}\def\@tempb{left}%
393   \ifx\@tempa\@tempb
394     \@l@dttempcntb \z@
395   \else
396     \def\@tempb{right}%
397     \ifx\@tempa\@tempb
398       \@l@dttempcntb \@ne
399     \else
400       \def\@tempb{outer}%
401       \ifx\@tempa\@tempb
402         \@l@dttempcntb \tw@
403       \else
404         \def\@tempb{inner}%
405         \ifx\@tempa\@tempb
406           \@l@dttempcntb \thr@@
407         \else
408           \led@warn@BadLinenummargin
409           \@l@dttempcntb \m@ne
410         \fi
411       \fi
412     \fi
413   \fi}%
414
```

`\c@firstlinenum` The following counters tell `eledmac` 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.

```

415 \newcounter{firstlinenum}
416 \setcounter{firstlinenum}{5}
```

```

417 \newcounter{linenumincrement}
418 \setcounter{linenumincrement}{5}

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

419 \newcounter{firstsublinenum}
420 \setcounter{firstsublinenum}{5}
421 \newcounter{sublinenumincrement}
422 \setcounter{sublinenumincrement}{5}
423

\firstlinenum These macros can be used to set the corresponding counters.
\linenumincrement 424 \newcommand*{\firstlinenum}[1]{\setcounter{firstlinenum}{#1}}
\firstsublinenum 425 \newcommand*{\linenumincrement}[1]{\setcounter{linenumincrement}{#1}}
\sublinenumincrement 426 \newcommand*{\firstsublinenum}[1]{\setcounter{firstsublinenum}{#1}}
427 \newcommand*{\sublinenumincrement}[1]{\setcounter{sublinenumincrement}{#1}}
428

\lockdisp When line locking is being used, the \lockdisp{<word>} macro specifies whether
\lock@disp a line number—if one is due to appear—should be printed on the first printed line
\l@getlock@disp or on 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.

429 \newcount\lock@disp
430 \newcommand{\lockdisp}[1]{%
431 \l@getlock@disp{#1}%
432 \ifnum\l@dtmptcntb>\m@ne
433 \global\lock@disp=\l@dtmptcntb
434 \else
435 \led@warn@BadLockdisp
436 \fi}}
437 \newcommand*{\l@getlock@disp}[1]{
438 \def\@tempa{#1}\def\@tempb{first}%
439 \ifx\@tempa\@tempb
440 \l@dtmptcntb \z@
441 \else
442 \def\@tempb{last}%
443 \ifx\@tempa\@tempb
444 \l@dtmptcntb \@ne
445 \else
446 \def\@tempb{all}%
447 \ifx\@tempa\@tempb
448 \l@dtmptcntb \tw@
449 \else
450 \l@dtmptcntb \m@ne
451 \fi
452 \fi
453 \fi}
454

```

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

```
455 \newcount\sublock@disp
456 \newcommand{\sublockdisp}[1]{%
457   \l@getlock@disp{#1}%
458   \ifnum\@l@tempcntb>\m@ne
459     \global\sublock@disp=\@l@tempcntb
460   \else
461     \led@warn@BadSublockdisp
462   \fi}}
463
```

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

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

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

`\sublinenumrep`       `\linenumberstyle` and `\sublinenumberstyle` are user level macros for set-  
`\sublinenumr@p`     ting the number representation (`\linenumrep` and `\sublinenumrep`) for line and  
                          sub-line numbers.

```
464 \newcommand*{\linenumberstyle}[1]{%
465   \def\linenumrep##1{\@nameuse{#1}{##1}}}
466 \newcommand*{\sublinenumberstyle}[1]{%
467   \def\sublinenumrep##1{\@nameuse{#1}{##1}}}
```

Initialise the number styles to arabic.

```
468 \linenumberstyle{arabic}
469 \let\linenumr@p\linenumrep
470 \sublinenumberstyle{arabic}
471 \let\sublinenumr@p\sublinenumrep
472
```

`\leftlinenum`   `\leftlinenum` and `\rightlinenum` are the macros that are called to print  
`\rightlinenum`   marginal line numbers on a page, for left- and right-hand margins respectively.  
`\linenumsep`       They're made easy to access and change, since you may often want to change the  
`\numlabfont`       styling in some way. These standard versions illustrate the general sort of thing  
`\ledlinenum`       that will be needed; they're 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'll 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 subline) number.

The original `\numlabfont` specification is equivalent to the L<sup>A</sup>T<sub>E</sub>X `\scriptsize` for a 10pt document.

```
473 \newlength{\linenumsep}
```

```

474 \setlength{\linenumsep}{1pc}
475 \newcommand*{\numlabfont}{\normalfont\scriptsize}
476 \newcommand*{\ledlinenum}{%
477   \bgroup%
478   \ifluatex%
479     \luatextextdir TLT%
480   \fi%
481   \numlabfont\linenumrep{\line@num}%
482   \ifsublines@
483     \ifnum\subline@num>0\relax
484     \unskip\fullstop\sublinenumrep{\subline@num}%
485   \fi
486   \fi%
487   \egroup%
488 }%
489
490 \newcommand*{\leftlinenum}{%
491   \ledlinenum
492   \kern\linenumsep}
493 \newcommand*{\rightlinenum}{%
494   \kern\linenumsep
495   \ledlinenum}
496

```

## 21.2 List macros

Reminder: compare these with the L<sup>A</sup>T<sub>E</sub>X list macros in case they would be suitable instead.

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.

**\list@create** The `\list@create` macro creates a new list. In this version of `eledmac` this macro doesn't do anything beyond initializing an empty list macro, but in future versions it may do more.

```
497 \newcommand*{\list@create}[1]{\global\let#1=\empty}
```

**\list@clear** The `\list@clear` macro just initializes a list to the empty list; in this version of `eledmac` it is no different from `\list@create`.

```
498 \newcommand*{\list@clear}[1]{\global\let#1=\empty}
```

**\xright@appenditem** `\xright@appenditem` expands an item and appends it to the right end of a list macro. We want the expansion because we'll often be using this to store the

**\led@toksa**

**\led@toksb**

current value of a counter. `\xright@appenditem` creates global control sequences, like `\xdef`, and uses two temporary token-list registers, `\@toksa` and `\@toksb`.

```
499 \newtoks\led@toksa \newtoks\led@toksb
500 \global\led@toksa={\}
501 \long\def\xright@appenditem#1\to#2{%
502   \global\led@toksb=\expandafter{#2}%
503   \xdef#2{\the\led@toksb\the\led@toksa\expandafter{#1}}%
504   \global\led@toksb={}}
```

`\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`.

```
505 \long\def\xleft@appenditem#1\to#2{%
506   \global\led@toksb=\expandafter{#2}%
507   \xdef#2{\the\led@toksa\expandafter{#1}\the\led@toksb}%
508   \global\led@toksb={}}
```

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

```
509 \def\gl@p#1\to#2{\expandafter\gl@poff#1\gl@poff#1#2}
510 \long\def\gl@poff\#1#2\gl@poff#3#4{\gdef#4{#1}\gdef#3{#2}}
511
```

### 21.3 Line-number counters and lists

Footnote references using line numbers rather than symbols can't be generated in one pass, because we don't 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 `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's used in marginal line numbering and in notes: counting either from the start of the page or from the start of the section, depending on your choice for this section. This may be qualified by `\subline@num`.

```
512 \newcount\line@num
```

- `\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.
- 513 `\newcount\subline@num`
- `\ifsublines@` We maintain an associated flag, `\ifsublines@`, to tell us whether we're within a sub-line range or not.
- `\sublines@true`
- `\sublines@false` You may wonder why we don't 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 drama, in which stage directions are given sub-line numbers: a single line of verse may be interrupted by several stage directions.
- 514 `\newif\ifsublines@`
- `\absline@num` The count `\absline@num` stores the absolute number of lines since the start of the section: that is, the number we've 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 doesn't depend on the lineation system in use.
- 515 `\newcount\absline@num`
- We'll be calling `\absline@num` numbers 'absolute' numbers, and `\line@num` and `\subline@num` numbers 'visible' numbers.
- `\@lock` The counts `\@lock` and `\sub@lock` tell us the state of line-number and sub-line-number locking. 0 means we're not within a locked set of lines; 1 means we're at the first line in the set; 2, at some intermediate line; and 3, at the last line.
- `\sub@lock`
- 516 `\newcount\@lock`
- 517 `\newcount\sub@lock`
- `\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 `eledmac` what action it's supposed to take at each of these lines. One action, the page-start action, is generated behind the scenes by `eledmac` 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 `eledmac` computes the visible line numbers from the absolute line numbers with reference to the other action codes and the settings they invoke; it doesn't require an entry in the action-code list for every line.

Here are the commands to create these lists:

```

518      \list@create{\line@list}
519      \list@create{\insertlines@list}
520      \list@create{\actionlines@list}
521      \list@create{\actions@list}
522
\page@num We'll need some counts while we read the line-list, for the page number and the
\endpage@num ending page, line, and sub-line numbers. Some of these will be used again later
\endline@num on, when we are acting on the data in our list macros.
\endsubline@num
523 \newcount\page@num
524 \newcount\endpage@num
525 \newcount\endline@num
526 \newcount\endsubline@num

\ifnoteschanged@ If the number of the footnotes in a section is different from what it was during
\noteschanged@true the last run, or if this is the very first time you've run LATEX, on this file, the
\noteschanged@false
```

information from 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 don't really know where in the section notes were added or removed, and the solution in any case is simply to run L<sup>A</sup>T<sub>E</sub>X two more times; there's 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.

```
527 \newif\ifnoteschanged@
```

`\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 `\numberonlyfirstinline`. This macro must be reset at the same time as the line number. The `\resetprevline@` does this resetting for every series.

```
\resetprevline@
```

```
528 \newcommand*{\resetprevline@}{%
529   \def\do##1{\global\csundef{prevline##1}}%
530   \dolistloop{\@series}%
531 }
```

`\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 `\parafootsep`. This macro must be reset at the beginning of each numbered section. The `\resetprevpage@` command resets this macro for every series.

```
\resetprevpage@
```

```
532 \newcommand*{\resetprevpage@num}{%
533   \def\do##1{\ifcsdef{prevpage##1@num}{\global\csname prevpage##1@num\endcsname=0}{}}%
534   \dolistloop{\@series}%
535 }
```

## 21.4 Reading the line-list file

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

```
536 \newread\@inputcheck
537 \newcommand*{\read@linelist}[1]{%
538   \list@clearing@reg
```

When the file is there we start a new group and make some special definitions we'll need to process it: it's a sequence of T<sub>E</sub>X commands, but they require a few special settings. We make [ and ] become grouping characters: they're 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's easier to just use something other than real braces. @ must become a letter, since this is run in the ordinary L<sup>A</sup>T<sub>E</sub>X context. We

ignore carriage returns, since if we're 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 `\resumenummering`, 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.

```
539 \get@linelistfile{#1}%
540 \endgroup
```

When the reading is done, we're 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.

```
541 \global\page@num=\m@ne
542 \ifx\actionlines@list\empty
543   \gdef\next@actionline{1000000}%
544 \else
545   \glp\actionlines@list\to\next@actionline
546   \glp\actions@list\to\next@action
547 \fi}
548
```

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

```
549 \newcommand*{\list@clearing@reg}{%
550   \list@clear{\line@list}%
551   \list@clear{\insertlines@list}%
552   \list@clear{\actionlines@list}%
553   \list@clear{\actions@list}%
554 }
```

`\get@linelistfile` `eledmac` can take advantage of the L<sup>A</sup>T<sub>E</sub>X 'safe file input' macros to get the line-list file.

```
555 \newcommand*{\get@linelistfile}[1]{%
556   \InputIfFileExists{#1}{%
557     \global\noteschanged@false
558     \begingroup
559       \catcode`\[=1 \catcode`\]=2
560       \makeatletter \catcode`\^^M=9}{%
561     \led@warn@NoLineFile{#1}%
562     \global\noteschanged@true
563     \begingroup}%
564 }
```

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'd have to do some file renaming outside of L<sup>A</sup>T<sub>E</sub>X for that to work. We've 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. 15 above).

## 21.5 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 say `\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 refer to the older commands of `eledmac`. In this case, we stop reading the line-list file. Consequently, `\line@list@version` should be the first line of a line-number file.

```

566 \newcommand{\line@list@version}[1]{%
567   \IfStrEq{#1}{\this@line@list@version}%
568   }{%
569     {\ifledRcol%
570       \led@warn@0obsolete{\jobname.\extensionchars\the\section@num}%
571       \else%
572       \led@warn@0obsolete{\jobname.\extensionchars\the\section@num}%
573       \fi%
574       \endinput%
575     }%
576 }%
```

`\@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>}`

I don't (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.

```
577 \newcommand{\@nl}[2]{%
578   \fix@page{#1}%
579   \@nl@reg}
580 \newcommand*{\@nl@reg}{%
581   \ifx\l@dchset@num\relax \else
582     \advance\absline@num \@ne
583     \set@line@action
584     \let\l@dchset@num=\relax
585     \advance\absline@num \m@ne
586     \advance\line@num \m@ne
587   \fi
```

First increment the absolute line-number, and perform deferred actions relating to page starts and sub-lines.

```
588   \advance\absline@num \@ne
589     \ifx\next@page@num\relax \else
590       \page@action
591       \let\next@page@num=\relax
592   \fi
593   \ifx\sub@change\relax \else
594     \ifnum\sub@change>\z@
595       \sublines@true
596     \else
597       \sublines@false
598   \fi
599   \sub@action
600   \let\sub@change=\relax
601 \fi
```

Fix the lock counters, if necessary. A value of 1 is advanced to 2; 3 advances to 0; other values are unchanged.

```
602   \ifcase\@lock
603     \or
604       \@lock \tw@
605     \or \or
606       \@lock \z@
607   \fi
608   \ifcase\sub@lock
609     \or
610       \sub@lock \tw@
611     \or \or
612       \sub@lock \z@
613   \fi
```

Now advance the visible line number, unless it's been locked.

```

614      \ifsublines@
615          \ifnum\sub@lock<\tw@
616              \advance\subline@num \@ne
617          \fi
618      \else
619          \ifnum\@lock<\tw@
620              \advance\line@num \@ne \subline@num \z@
621          \fi
622      \fi}
623

```

`\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 `\@nl`.

```

624 \newcount\last@page@num
625 \last@page@num=-10000
626 \newcommand*{\fix@page}[1]{%
627     \ifnum #1=\last@page@num
628     \else
629         \ifbypage@
630             \csxdef{lastlinenumberon@the\last@page@num}{\the\line@num}%
631             \line@num=\z@ \subline@num=\z@
632         \fi
633         \page@num=#1\relax
634         \last@page@num=#1\relax
635         \def\next@page@num{#1}%
636         \listxadd{\normal@page@break}{\the\absline@num}
637     \fi}
638

```

`\@pend` These don't do anything at this point, but will have been added to the auxiliary file(s) if the `eledpar` package has been used. They are just here to stop `eledmac` from moaning if the `eledpar` is used for one run and then not for the following one.

`\@pendR`

`\@lopL`

`\@lopR`

```

639 \newcommand*{\@pend}[1]{%
640 \newcommand*{\@pendR}[1]{%
641 \newcommand*{\@lopL}[1]{%
642 \newcommand*{\@lopR}[1]{%
643

```

`\sub@on` The `\sub@on` and `\sub@off` macros turn sub-lineation on and off: but not directly, since such changes don't really take effect until the next line of text. Instead they set a flag that notifies `\@nl` of the necessary action.

`\sub@off`

```

644 \newcommand*{\sub@on}{\ifsublines@
645     \let\sub@change=\relax
646 \else
647     \def\sub@change{1}%
648 \fi}
649 \newcommand*{\sub@off}{\ifsublines@
650     \def\sub@change{-1}%

```

```

651 \else
652     \let\sub@change=\relax
653 \fi}
654

```

`\@adv` The `\@adv{<num>}` macro advances the current visible line number by the amount specified as its argument. This is used to implement `\advanceline`.

```

655 \newcommand*{\@adv}[1]{\ifsublines@
656     \advance\subline@num by #1\relax
657     \ifnum\subline@num<\z@
658         \led@warn@BadAdvancelineSubline
659         \subline@num \z@
660     \fi
661 \else
662     \advance\line@num by #1\relax
663     \ifnum\line@num<\z@
664         \led@warn@BadAdvancelineLine
665         \line@num \z@
666     \fi
667 \fi
668 \set@line@action}
669

```

`\@set` The `\@set{<num>}` macro sets the current visible line number to the value specified as its argument. This is used to implement `\setline`.

```

670 \newcommand*{\@set}[1]{\ifsublines@
671     \subline@num=#1\relax
672 \else
673     \line@num=#1\relax
674 \fi
675 \set@line@action}
676

```

`\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` is a flag to the `\@l` macro. If it is not `\relax` then a linenum change is to be done.

```

677 \newcommand*{\l@d@set}[1]{%
678     \line@num=#1\relax
679     \advance\line@num \@ne
680     \def\l@dchset@num{#1}}
681 \let\l@dchset@num\relax
682

```

`\page@action` `\page@action` adds an entry to the action-code list to change the page number.

```

683 \newcommand*{\page@action}{%
684     \xright@appenditem{\the\absline@num}\to\actionlines@list
685     \xright@appenditem{\next@page@num}\to\actions@list}

```



`\set@line@action` `\set@line@action` adds an entry to the action-code list to change the visible line number.

```

686 \newcommand*{\set@line@action}{%
687   \xright@appenditem{\the\absline@num}\to\actionlines@list
688   \ifsublines@
689     \@l@dttempcnta=-\subline@num
690   \else
691     \@l@dttempcnta=-\line@num
692   \fi
693   \advance\@l@dttempcnta by -5000
694   \xright@appenditem{\the\@l@dttempcnta}\to\actions@list}

```

`\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.

```

695 \newcommand*{\sub@action}{%
696   \xright@appenditem{\the\absline@num}\to\actionlines@list
697   \ifsublines@
698     \xright@appenditem{-1001}\to\actions@list
699   \else
700     \xright@appenditem{-1002}\to\actions@list
701   \fi}

```

`\lock@on` `\lock@on` adds an entry to the action-code list to turn line number locking on.  
`\do@lockon` The current setting of the sub-lineation flag tells us whether this applies to line  
`\do@lockonL` numbers or sub-line numbers.

Adding commands to the action list is slow, and it's 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.

```

702 \newcommand*{\lock@on}{\futurelet\next\do@lockon}
703 \newcommand*{\do@lockon}{%
704   \ifx\next\lock@off
705     \global\let\lock@off=\skip@lockoff
706   \else
707     \do@lockonL
708   \fi}
709 \newcommand*{\do@lockonL}{%
710   \xright@appenditem{\the\absline@num}\to\actionlines@list
711   \ifsublines@
712     \xright@appenditem{-1005}\to\actions@list
713     \ifnum\sub@lock=\z@
714       \sub@lock \@ne
715     \else
716       \ifnum\sub@lock=\thr@@
717         \sub@lock \@ne
718       \fi
719     \fi
720   \else
721     \xright@appenditem{-1003}\to\actions@list

```

```

722 \ifnum \@lock=\z@
723 \@lock \@ne
724 \else
725 \ifnum \@lock=\thr@@
726 \@lock \@ne
727 \fi
728 \fi
729 \fi}
730

```

`\lock@off` `\lock@off` adds an entry to the action-code list to turn line number locking off.

```

\do@lockoff 731 \newcommand*{\do@lockoff}{%
\do@lockoffL 732 \xright@appenditem{\the\absline@num}\to\actionlines@list
\skip@lockoff 733 \ifsublines@
734 \xright@appenditem{-1006}\to\actions@list
735 \ifnum\sub@lock=\tw@
736 \sub@lock \thr@@
737 \else
738 \sub@lock \z@
739 \fi
740 \else
741 \xright@appenditem{-1004}\to\actions@list
742 \ifnum \@lock=\tw@
743 \@lock \thr@@
744 \else
745 \@lock \z@
746 \fi
747 \fi}
748 \newcommand*{\do@lockoff}{\do@lockoffL}
749 \newcommand*{\skip@lockoff}{\global\let\lock@off=\do@lockoff}
750 \global\let\lock@off=\do@lockoff
751

```

`\n@num` These macros implement the `\skipnumbering` command. They use a new action code, namely 1007.

```

752 \newcommand*{\n@num}{%
753 \ifledRcol%
754 \xright@appenditem{\the\absline@numR}\to\actionlines@listR
755 \xright@appenditem{-1007}\to\actions@listR
756 \else%
757 \xright@appenditem{\the\absline@num}\to\actionlines@list%
758 \xright@appenditem{-1007}\to\actions@list%
759 \fi%
760 }%
761

```

`\n@num@stanza` This macro implements the `\skipnumbering` for stanza command. It uses a new action code, namely 1008.

```

762 \newcommand*{\n@num@stanza}{%

```

```

763 \ifledRcol%
764   \xright@appenditem{\the\absline@numR}\to\actionlines@listR%
765   \xright@appenditem{-1008}\to\actions@listR%
766 \else%
767   \xright@appenditem{\the\absline@num}\to\actionlines@list%%
768   \xright@appenditem{-1008}\to\actions@list%
769 \fi%
770 }

```

`\ifl@dhidenum` `\hidenum` hides number in margin. It uses action code 1009.

`\hidenum`  
`\h@num`

```

771 \newif\ifl@dhidenum
772 \newcommand*{\hidenum}{%
773   \ifledRcol%
774     \write\linenum@outR{\string\hide@num}%
775   \else%
776     \write\linenum@out{\string\hide@num}%
777   \fi%
778 }%
779 \newcommand*{\hide@num}{%
780   \ifledRcol%
781     \xright@appenditem{\the\absline@numR}\to\actionlines@listR%
782     \xright@appenditem{-1009}\to\actions@listR%
783   \else%
784     \xright@appenditem{\the\absline@num}\to\actionlines@list%%
785     \xright@appenditem{-1009}\to\actions@list%
786   \fi%
787 }

```

`\@ref` `\@ref` marks the start of a passage, for creation of a footnote reference. It takes two 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`.

```
788   \newcount\insert@count
```

- #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's necessary to temporarily redefine `\@ref` within `\@ref`, so that we're only doing one of these at a time.

```
789 \newcommand*{\dummy@ref}[2]{#2}
```

`\@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.

```

790 \newcommand*{\@ref}[2]{%
791   \@ref@reg{#1}{#2}}
792 \newcommand*{\@ref@reg}[2]{%
793   \global\insert@count=#1\relax
794   \global\advance\@edtext@level by 1%
795   \loop\ifnum\insert@count>\z@
796     \xright@appenditem{\the\absline@num}\to\insertlines@list
797     \global\advance\insert@count \m@ne
798   \repeat

```

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.

```

799 \begingroup
800   \let\@ref=\dummy@ref
801   \let\@lopL\@gobble
802   \let\page@action=\relax
803   \let\sub@action=\relax
804   \let\set@line@action=\relax
805   \let\@lab=\relax
806   \let\@lemma=\relax%
807   \let\@sw\@gobblethree%
808   #2
809   \global\endpage@num=\page@num
810   \global\endline@num=\line@num
811   \global\endsubline@num=\subline@num
812 \endgroup

```

Now store all the information about the location of the lemma's start and end in \line@list.

```

813 \xright@appenditem%
814   {\the\page@num|\the\line@num|%
815    \ifsublines@ \the\subline@num \else 0\fi|%
816    \the\endpage@num|\the\endline@num|%
817    \ifsublines@ \the\endsubline@num \else 0\fi}\to\line@list

```

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.

```

818 \expandafter\list@create\expandafter{\csname sw@list@edtext@tmp@\the\@edtext@level\endcsname}%
819 \providebool{lemmacommand@\the\@edtext@level}%
820 \boolfalse{lemmacommand@\the\@edtext@level}%

```

Execute the second argument of \@ref again, to perform for real all the commands within it.

```

821 #2%

```

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.

```

822 \ifnum\@edtext@level>0%
823 \def\create@this@edtext@level{\expandafter\list@create\expandafter{\csname sw@list@edtext@level\endcsname}%

```

```

824 \ifcsundef{sw@list@edtext@the\@edtext@level}{\create@this@edtext@level}{}%
825 \letcs{\@tmp}{sw@list@edtext@the\@edtext@level}%
826 \letcs{\@tmpp}{sw@list@edtext@tmp@the\@edtext@level}
827 \xright@appenditem{\expandonce\@tmpp}{to\@tmp%
828 \global\cslet{sw@list@edtext@the\@edtext@level}{\@tmp}%
829 \fi%

```

Decrease edtext level counter.

```

830 \global\advance\@edtext@level by -1%
831 }
832

```

## 21.6 Writing to the line-list file

We’ve now defined all the counters, lists, and commands involved in reading the line-list file at the start of a section. Now we’ll cover the commands that **eledmac** 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`.

```
833 \newwrite\linenum@out
```

```

\iffirst@linenum@out@
\first@linenum@out@true
\first@linenum@out@false

```

Once any file is opened on this stream, we keep it open forever, or else switch to another file that we keep open. The reason is that we want the output routine to write the page number for every page to this file; otherwise we’d have to write it at the start of every line. But it’s not very easy for the output routine to tell whether an output stream is open or not. There’s 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’s set to be **true** before any `\linenum@out` file is opened. When such a file is opened for the first time, it’s 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**.

```

834 \newif\iffirst@linenum@out@
835 \first@linenum@out@true

```

`\this@line@list@version`

The commands allowed in the line-list file and their arguments can change between two version of **eledmac**. 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 insided are deprecated, and we can’t use them.

```
836 \newcommand{\this@line@list@version}{2}%
```

`\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.

```
837 \newcommand*{\line@list@stuff}[1]{%
```

First, use the commands of the previous section to interpret the line-list file from the last run.

```
838 \read@linelist{#1}%
```

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.

```
839 \iffirst@linenum@out@
840 \immediate\closeout\linenum@out%
841 \global\first@linenum@out@false%
842 \immediate\openout\linenum@out=#1\relax%
843 \immediate\write\linenum@out{\string\line@list@version{\this@line@list@version}}%
844 \else
```

If we get here, then this is not the first line-list we've seen, so we don't open or close the files immediately.

```
845 \if@minipage%
846 \leavevmode%
847 \fi%
848 \closeout\linenum@out%
849 \openout\linenum@out=#1\relax%
850 \fi}
851
```

`\new@line` The `\new@line` macro sends the `\@nl` command to the line-list file, to mark the start of a new text line, and its page number.

```
852 \newcommand*{\new@line}{%
853 \IfStrEq{\led@pb@setting}{after}%
854 {\xifinlist{\the\absline@num}{\l@prev@nopb}%
855 {\xifinlist{\the\absline@num}{\normal@page@break}%
856 {\numgdef{\@next@page}{\thepage+1}%
857 \write\linenum@out{\string\@nl[\@next@page] [\@next@page]}}%
858 }%
859 {\write\linenum@out{\string\@nl[\the\c@page] [\thepage]}}%
860 }%
861 {\write\linenum@out{\string\@nl[\the\c@page] [\thepage]}}}%
862 }%
863 \IfStrEq{\led@pb@setting}{before}%
864 {\numgdef{\next@absline}{\the\absline@num+1}%
865 \xifinlist{\next@absline}{\l@prev@nopb}%
866 {\xifinlist{\the\absline@num}{\normal@page@break}%
867 {\numgdef{\nc@page}{\c@page+1}%
868 \write\linenum@out{\string\@nl[\nc@page] [\nc@page]}}%
869 }%
870 {\write\linenum@out{\string\@nl[\the\c@page] [\thepage]}}%
871 }%
872 {\write\linenum@out{\string\@nl[\the\c@page] [\thepage]}}%
873 }%
874 }%
875 \IfStrEqCase{\led@pb@setting}{\{before\}{\relax}\{after\}{\relax}}{\write\linenum@out{\string\@nl[\the\c@page] [\thepage]}}}
```

876 }  
877

`\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 footnotes.

`\flag@start` We enclose a lemma marked by `\edtext` in `\flag@start` and `\flag@end`: these  
`\flag@end` 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.

```
878 \newif\if@noneed@Footnote%
879
880 \newcommand*{\flag@start}{%
881   \ifledRcol%
882     \edef\next{\write\linenum@outR{%
883       \string\@ref[\the\insert@countR] []}%
884     \next%
885     \ifnum\insert@countR<1%
886       \if@noneed@Footnote\else%
887         \led@err@EdtextWithoutFootnote%
888       \fi%
889     \fi%
890   \else%
891     \edef\next{\write\linenum@out{%
892       \string\@ref[\the\insert@count] []}%
893     \next%
894     \ifnum\insert@count<1%
895       \if@noneed@Footnote\else%
896         \led@err@EdtextWithoutFootnote%
897       \fi%
898     \fi%
899   \fi}%
900
```

`\page@start` Originally the commentary was: `\page@start` writes a command to the line-list file noting the current page number; when used within an output routine, this should be called so as to place its `\write` within the box that gets shipped out, and as close to the top of that box as possible.

However, in October 2004 Alexej Krukov discovered that when processing long paragraphs that included Russian, Greek and Latin texts `eledmac` would go into an infinite loop, emitting thousands of blank pages. This was caused by being unable to find an appropriate place in the output routine. A different algorithm is now used for getting page numbers.

```
901 \newcommand*{\page@start}{%
902
```

`\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 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 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.

```

903 \newcommand*{\startsub}{\dimen0\lastskip
904   \ifdim\dimen0>0pt \unskip \fi
905   \write\linenum@out{\string\sub@on}%
906   \ifdim\dimen0>0pt \hskip\dimen0 \fi}
907 \def\endsub{\dimen0\lastskip
908   \ifdim\dimen0>0pt \unskip \fi
909   \write\linenum@out{\string\sub@off}%
910   \ifdim\dimen0>0pt \hskip\dimen0 \fi}
911

```

`\advanceline` You can use `\advanceline{<num>}` in running text to advance the current visible line-number by a specified value, positive or negative.

```

912 \newcommand*{\advanceline}[1]{\write\linenum@out{\string\@adv[#1]}}

```

`\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.

```

913 \newcommand*{\setline}[1]{%
914   \ifnum#1<\z@
915     \led@warn@BadSetline
916   \else
917     \write\linenum@out{\string\@set[#1]}%
918   \fi}
919

```

`\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.

```

920 \newcommand*{\setlinenum}[1]{%
921   \ifnum#1<\z@
922     \led@warn@BadSetlinenum
923   \else
924     \write\linenum@out{\string\l@d@set[#1]}%
925   \fi}
926

```

`\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.



```

927 \newcommand*{\startlock}{\write\linenum@out{\string\lock@on}}
928 \def\endlock{\write\linenum@out{\string\lock@off}}
929

```

```

\ifl@dskipnumber In numbered text \skipnumbering will suspend the numbering for that particular
\ifl@dskipversenumber line.

```

```

\l@dskipnumbertrue 930 \newif\ifl@dskipnumber
\l@dskipnumberfalse 931 \newif\ifl@dskipversenumber%
\skipnumbering 932 \newcommand*{\skipnumbering}{%
933 \leavevmode%
934 \ifledRcol%
935 \ifinstanza%
936 \write\linenum@outR{\string\n@num@stanza}%
937 \else%
938 \write\linenum@outR{\string\n@num}%
939 \fi%
940 \advanceline{-1}%
941 \else%
942 \ifinstanza%
943 \write\linenum@out{\string\n@num@stanza}%
944 \else%
945 \write\linenum@out{\string\n@num}%
946 \fi%
947 \advanceline{-1}%
948 \fi%
949 }%
950

```

## 22 Marking text for notes

The `\edtext` (or `\critext`) 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.

For convenience, I will use `\*text` when I do not need to distinguish between `\edtext` and `\critext`. The `\*text` macros take two arguments, the only difference between `\edtext` and `\critext` is how the second argument is delineated.

`\critext` requires two arguments. At any point within numbered text, you use it by saying:

```
\critext{#1}#2/
```

Similarly `\edtext` requires the same two arguments but you use it by saying:

```
\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. With `\critext` the `/` after `#2` *must* appear: it marks the end of the macro. (*The TeXbook*, p. 204, points out that when additional text to be matched follows the arguments like this, spaces following the macro are not skipped, which is very desirable since this macro will never be used except within text. Having an explicit terminator also helps keep things straight when nested calls to `\critext` are used.) Braces around `#2` are optional with `\critext` and required for `\edtext`.

The `\*text` macro may be used (somewhat) recursively; that is, `\*text` 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's quite likely that we'll 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 aren't 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 `\*text` will fail if you try to use a copy that is called something other than `\*text`. In order to handle recursion, `\*text` needs to redefine its own definition temporarily at one point, and that doesn't work if the macro you are calling is not actually named `\*text`. There's no problem as long as `\*text` is not invoked in the first argument. If you want to call `\*text` something else, it is best to create instead a macro that expands to an invocation of `\*text`, rather than copying `\*text` 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`, 23.2 p. 107). 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 don't provide previous-note information, although it's often wanted; your own macros must handle that. We can't do it correctly without keeping track of what kind of notes have gone past: it's not just a matter of remembering the line numbers associated with the previous invocation of `\*text`, 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.

## 22.1 `\edtext` (and `\critext`) 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.

```
951 \list@create{\end@lemmas}
```

`\dummy@text` 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's because nested `\edtexts` macros create nested `\@ref` entries in the line-list file.

Here's a macro that takes the same arguments as `\critext` but merely returns the first argument and ignores the second.

```
952 \long\def\dummy@text#1#2/{#1}
```

`\dummy@edtext` L<sup>A</sup>T<sub>E</sub>X users are not used to delimited arguments, so we provide a `\edtext` macro as well.

```
953 \newcommand{\dummy@edtext}[2]{#1}
```

`\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`.

```
954 \newcommand{\dummy@edtext@showlemma}[2]{\showlemma{#1}}%
```

We're going to need another macro that takes one argument and ignores it entirely. This is supplied by the L<sup>A</sup>T<sub>E</sub>X `\@gobble{<arg>}`.

`\no@expands` We need to turn off macro expansion for certain sorts of macros we're 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

---

<sup>26</sup>Since 'control sequences equivalent to characters are not expandable'—*The TeXbook*, answer to Exercise 20.14.

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's 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.

(The `\copyright` macro defined in PLAIN  $\TeX$  has this sort of problem as well, but isn't 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 `eledmac` 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 `eledmac` 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.)

```

955 \newcommand*{\no@expands}{%
956   \let\select@lemmafont=0%
957   \let\startsub=\relax \let\endsub=\relax
958   \let\startlock=\relax \let\endlock=\relax
959   \let\edlabel=\@gobble
960   \let\setline=\@gobble \let\advanceline=\@gobble
961   \let\critext=\dummy@text
962   \let\sameword\sameword@inedtext%
963   \let\edtext=\dummy@edtext
964   \l@dtabnoexpands
965   \morenoexpands}
966 \let\morenoexpands=\relax

```

967

`\@tag` Now, we define an empty `\@tag` command. It will be redefine by `\edtext`: its value is the first args. It will be used by the `\Xfootnote` commands.

968 `\newcommand{\@tag}{}%`

`\@edtext@level` This counter is increased by 1 at each level of `\edtext` (or `\critext`). That is useful for some commands which can have a different behavior if called inside or outside of the `{\lemma}` argument.

969 `\newcount\@edtext@level%`970 `\@edtext@level=0%`

`\critext` Now we begin `\critext` itself. The definition requires a / after the arguments: this eliminates the possibility of problems about knowing where #2 ends. This also changes the handling of spaces following an invocation of the macro: normally such spaces are skipped, but in this case they're significant because #2 is a 'delimited parameter'. Since `\critext` is always used in running text, it seems more appropriate to pay attention to spaces than to skip them.

Since v.1.17.0, `\critext` only refers to `\edtext`.

971 `\long\def\critext#1#2/{\edtext{#1}{#2}}%`

`\edtext` When executed, `\edtext` first ensures that we're in horizontal mode.

972 `\newcommand{\edtext}[2]{\leavevmode%`

Then, check if we are in a numbered paragraph (`\pstart...\pend`)..

973 `\ifnumberedpar%`

We increase the `\@edtext@` counter to know in which level of `\edtext` we are.

974 `\global\advance\@edtext@level by 1%`

By default, we don't use `\lemma`

975 `\global\@lemmacommand=false%`976 `\begingroup%`

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`.

977 `\ifledRcol%`978 `\ifcsundef{sw@list@edtextR@the\@edtext@level}%`979 `{\global\let\sw@inthisedtext\empty}%`980 `{\ifcempty{sw@list@edtextR@the\@edtext@level}%`981 `{\global\let\sw@inthisedtext\empty}%`982 `{\expandafter\gl@p\csname sw@list@edtextR@the\@edtext@level\endcsname\to\sw@inthisedtext}%`983 `}%`984 `\else%`985 `\ifcsundef{sw@list@edtext@the\@edtext@level}%`986 `{\global\let\sw@inthisedtext\empty}%`987 `{\ifcempty{sw@list@edtext@the\@edtext@level}%`988 `{\global\let\sw@inthisedtext\empty}%`989 `{\expandafter\gl@p\csname sw@list@edtext@the\@edtext@level\endcsname\to\sw@inthisedtext}%`990 `}%`991 `\fi%`

`\@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've also turned off the expansion of those control sequences commonly found within text that can cause trouble for us.

```
992      \global\renewcommand{\@tag}{%
993      \no@expands #1%
994      }%
```

`\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`.

```
995      \set@line%
```

`\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 (eledpar), we use `\insert@countR` instead of `\insert@count`.

```
996      \ifledRcol \global\insert@countR \z@%
997      \else      \global\insert@count \z@ \fi%
```

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.

```
998      \ignorespaces #2\relax%
```

With polyglossia, you must track whether the language reads left to right (English) or right to left (Arabic).

```
999      \@ifundefined{xpg@main@language}{%if not polyglossia
1000      \flag@start}%
1001      {\if@RTL\flag@end\else\flag@start\fi%
1002      }%
```

We write in the numbered file whether the current `\edtext` has a `\lemma` in the second argument.

```
1003      \if@lemmacommand@%
1004      \ifledRcol%
1005      \write\linenum@outR{\string\@lemma}%
1006      \else%
1007      \write\linenum@out{\string\@lemma}%
1008      \fi%
1009      \fi%
```

Finally, we're ready to admit the first argument into the current paragraph.

It's 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.

```
1010     \endgroup%
1011     \showlemma{#1}%
```

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.

```
1012     \ifx\end@lemmas\empty \else%
1013         \gl@p\end@lemmas\to\x@lemma%
1014         \x@lemma%
1015         \global\let\x@lemma=\relax%
1016     \fi%
1017     \@ifundefined{xpg@main@language}{%if not polyglossia
1018         \flag@end}%
1019     {%if@RTL\flag@start\else\flag@end\fi% With polyglossia, you must track whether the language reads
1020         }%
```

We switch to false some flags.

- The one that checks having footnotes inside a `\edtext`.
- The one that says we are inside a `\edtext`.
- The one that says we are inside a `\@lemma`.

```
1021     \global\@noneed@Footnotefalse%
1022     \global\advance\@edtext@level by -1%
1023     \global\@lemmacommand@false%
```

If we are outside of a numbered paragraph, we send error message and print the first argument.

```
1024     \else%
1025     \showlemma{#1} (\textbf{\textsc{Edtext outside numbered paragraph}})\led@err@edtextoutsidestart%
1026     \fi%
1027 }%
1028
1029 \newcommand*{\flag@end}{%
1030     \ifledRcol%
1031         \write\linenum@outR{}}%
1032     \else%
1033         \write\linenum@out{}}%
1034     \fi}%
1035
```

`\ifnumberline` The `\ifnumberline` option can be set to `FALSE` to disable line numbering.

```
1036 \newif\ifnumberline
1037 \numberlinetrue
```

`\set@line` The `\set@line` macro is called by `\critext` to put the line-reference field and font specifier for the current block of text into `\ld@nums`.

One instance of `\critext` may generate several notes, or it may generate none—it’s legitimate for argument #2 to `\critext` 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’s vital to also remove one and only one `\line@list` entry here.

```
1038 \newcommand*{\set@line}{%
```

If no more lines are listed in `\line@list`, something’s wrong—probably just some change in the input. We set all the numbers to zeros, following an old publishing convention for numerical references that haven’t yet been resolved.

```
1039 \ifx\line@list\empty
1040   \global\noteschanged@true
1041   \xdef\ld@nums{000|000|000|000|000|000|000|\edfont@info}%
1042 \else
1043   \gl@p\line@list\to\@tempb
1044   \xdef\ld@nums{\@tempb|\edfont@info}%
1045   \global\let\@tempb=\undefined
1046 \fi}
1047
```

`\edfont@info` The macro `\edfont@info` returns coded information about the current font.

```
1048 \newcommand*{\edfont@info}{\f@encoding/\f@family/\f@series/\f@shape}
1049
```

## 22.2 Substitute lemma

`\lemma` The `\lemma{<text>}` macro allows you to change the lemma that’s passed on to the notes. Read about `\@tag` in normal `\edtext` macro for more details about `\sw@list@inedtext` and `\no@expands` (22.1 p. 94).

```
1050 \unless\ifnocritical@
1051 \newcommand*{\lemma}[1]{%
1052   \global\@lemmacommand@true%
1053   \global\renewcommand{\@tag}{%
1054     \no@expands #1%
1055   }%
1056   \ignorespaces%
1057 }%
```

`\@lemma` The `\@lemma` is written in the numbered file to set which `\edtext` has an `\lemma` as second argument.

```
1058 \newcommand{\@lemma}{%
1059   \booltrue{lemmacommand@the\@edtext@level}%
1060 }%
1061 \fi
```

`\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.



```
1062 \newif\if@lemmacommand%
```

## 22.3 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 21.3 p. 72): 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 don't 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.

```
1063 \newcommand*{\linenum}[1]{%
1064   \xdef\@tempa{#1|}|}|}|}|}\noexpand\\l@d@nums}%
1065   \global\let\l@d@nums=\empty
1066   \expandafter\line@set\@tempa|\\ignorespaces}
```

**\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.

```
1067 \def\line@set#1|#2|#3|#4|\\{%
1068   \gdef\@tempb{#1}%
1069   \ifx\@tempb\empty
1070     \l@d@add{#3}%
1071   \else
1072     \l@d@add{#1}%
1073   \fi
1074   \gdef\@tempb{#4}%
1075   \ifx\@tempb\empty\else
1076     \l@d@add{|}\line@set#2|#4|\\%
1077   \fi}
```

**\l@d@add** **\line@set** uses **\l@d@add** to tack numbers or vertical bars onto the right hand end of **\l@d@nums**.

```
1078 \newcommand{\l@d@add}[1]{\xdef\l@d@nums{\l@d@nums#1}}
1079
```

## 22.4 Lemma disambiguation

The mechanism which counts the occurrence of a same word in a same line is quite complex, because, when L<sup>A</sup>T<sub>E</sub>X 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 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.

```
1080 \newcommand{\get@sw@txt}[1]{%
1081   \ifxetex%
1082     \xdef\sw@txt{#1}%
1083   \else%
1084     \expandafter\xdef\expandafter\sw@txt\expandafter{\detokenize{#1}}%
1085   \fi%
1086 }%
```

`\sameword` The high level macro `\sameword`, used by the editor.

```
1087 \newcommandx{\sameword}[2][1,usedefault]{%
1088   \leavevmode%
1089   \get@sw@txt{#2}%
```

Now, the real code. First, increment the counter corresponding to the argument.

```
1090 \unless\ifledRcol%
1091   \csnumgdef{sw@\sw@txt}{\csuse{sw@\sw@txt}+1}%
```

Then, write its value to the numbered file.

```
1092 \protected@write\linenum@out{}{\string\@sw{\sw@txt}{\csuse{sw@\sw@txt}}{#1}}%
```

Do the same thing if we are in the right columns.

```
1093 \else%
1094   \csnumgdef{sw@\sw@txt@R}{\csuse{sw@\sw@txt@R}+1}%
1095   \protected@write\linenum@outR{}{\string\@sw{\sw@txt}{\csuse{sw@\sw@txt@R}}{#1}}%
1096 \fi%
```

And print the word.

```
1097 #2%
1098 }%
```

A flag set to true if a `\@sw` relative rank must be added to the list of ranks for a specific `\edtext`.

`\if@addsw`

```
1099 \newif\if@addsw%
```

`\@sw` The command printed in the auxiliary files.

```
1100 \newcommand{\@sw}[3]{%
1101   \get@sw@txt{#1}%
1102   \unless\ifledRcol%
```

<sup>27</sup>See <http://tex.stackexchange.com/q/244538/7712>.

<sup>28</sup><http://sourceforge.net/p/xetex/bugs/108/>

First, define a counter which store the second argument as value for a each paired absolute line number/first argument

```
1103 \csxdef{sw@sw@txt @\the\absline@num @\the\section@num}{#2}%
```

If such argument was not defined for the preceding line, define it.

```
1104 \numdef{\prev@line}{\the\absline@num-1}%
1105 \ifcsundef{sw@sw@txt @\prev@line @\the\section@num}{%
1106 \csnumgdef{sw@sw@txt @\prev@line @\the\section@num}{#2-1}%
1107 }{}}%
```

Then, calculate the position of the word in the line.

```
1108 \numdef{\the@sw}{#2-\csuse{sw@sw@txt @\prev@line @\the\section@num}}%
```

And do the same thing for the right side.

```
1109 \else%
1110 \csxdef{sw@sw@txt @\the\absline@numR @\the\section@numR @R}{#2}%
1111 \numdef{\prev@line}{\the\absline@numR-1}%
1112 \ifcsundef{sw@sw@txt @\prev@line @\the\section@numR @R}{%
1113 \csnumgdef{sw@sw@txt @\prev@line @\the\section@numR @R}{#2-1}%
1114 }{}}%
1115 \numdef{\the@sw}{#2-\csuse{sw@sw@txt @\prev@line @\the\section@numR @R}}%
1116 \fi%
```

And now, add it to the list of \@sw for the current edtext, in all depth.

```
1117 \@tempcnta=\@edtext@level
1118 \@whilenum{\@tempcnta>0}\do{%
1119 \ifcsdef{sw@list@edtext@tmp@\the\@tempcnta}%
1120 {%
1121 \@addswfalse%
1122 \notbool{lemmacommand@\the\@tempcnta}%
1123 {\@addswtrue}%
1124 {\IfStrEq{#3}{inlemma}%
1125 {\@addswtrue}%
1126 {%
1127 \def\do##1{%
1128 \ifnumequal{##1}{\the\@tempcnta}%
1129 {\@addswtrue\listbreak}%
1130 }%
1131 }%
1132 \docsvlist{#3}%
1133 }%
1134 }%
1135 \if@addsw%
1136 \letcs{\@tmp}{sw@list@edtext@tmp@\the\@tempcnta}%
1137 \ifledRcol%
1138 \xright@appenditem{\the@sw}{\the\absline@numR}\to\@tmp%
1139 \else%
1140 \xright@appenditem{\the@sw}{\the\absline@num}\to\@tmp%
1141 \fi%
1142 \cslet{sw@list@edtext@tmp@\the\@tempcnta}{\@tmp}%
1143 \fi%
```

```

1144     }%
1145     {}%
1146     \advance\@tempcnta by -1%
1147   }%
1148 }%

```

`\sameword@inedtext` The command called when `\sameword` is called in a edtext.

```

1149 \newcommandx{\sameword@inedtext}[2][1,usedefault]{%
1150   \get@sw@txt{#2}%
1151   \unless\ifledRcol%

```

Just a precaution.

```

1152   \ifx\sw@list@inedtext\empty%
1153     \def\the@sw{999}%
1154     \def\this@absline{-99}%
1155   \else%

```

But in many cases, at this step, we should have some content in the list `\sw@list@inedtext`, which contains the reference for edtext.

```

1156     \gl@p\sw@list@inedtext\to\@tmp%
1157     \edef\the@sw{\expandafter\@firstoftwo\@tmp}%
1158     \edef\this@absline{\expandafter\@secondoftwo\@tmp}%
1159   \fi%

```

First, calculate the number of occurrences of the word in the current line

```

1160   \ifcsdef{sw\sw@txt @\this@absline @\the\section@num}{%
1161     \numdef{\prev@line}{\this@absline-1}%
1162     \numdef{\sw@atthisline}{\csuse{sw\sw@txt @\this@absline @\the\section@num}-\csuse{sw
1163       }%
1164     {\numdef{\sw@atthisline}{0}}%

```

Finally, print the rank, but only if there is more than one occurrence of the word in the current line.

```

1165   \ifnumgreater{\sw@atthisline}{1}%
1166     {\showwordrank{#2}{\the@sw}}%
1167   {#2}%

```

And the same for right side.

```

1168 \else%
1169   \ifx\sw@list@inedtext\empty%
1170     \def\the@sw{999}%
1171     \def\this@absline{-99}%
1172   \else%
1173     \gl@p\sw@list@inedtext\to\@tmp%
1174     \edef\the@sw{\expandafter\@firstoftwo\@tmp}%
1175     \edef\this@absline{\expandafter\@secondoftwo\@tmp}%
1176   \fi%
1177   \ifcsdef{sw\sw@txt @\this@absline @\the\section@numR @R}{%
1178     \numdef{\prev@line}{\this@absline-1}%
1179     \numdef{\sw@atthisline}{\csuse{sw\sw@txt @\this@absline @\the\section@numR @R}-\csus
1180     }%

```

```

1181      {\numdef{sw@atthisline}{0}}%
1182      \ifnumgreater{sw@atthisline}{1}%
1183        {\showwordrank{#2}{\the@sw}}%
1184        {#2}%
1185    \fi%
1186 }%

```

`\showwordrank`

```

1187 % Finally, the way the rank will be printed.
1188 \newcommand{\showwordrank}[2]{%
1189   #1\textsuperscript{#2}%
1190 }%

```

## 23 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.

### 23.1 Boxes, counters, `\pstart` and `\pend`

<pre> \raw@text \ifnumberedpar@ \numberedpar@true \numberedpar@false \num@lines \one@line \par@line </pre>	<p>Here are numbers and flags that are used internally in the course of the paragraph decomposition.</p> <p>When we first form the paragraph, it goes into a box register, <code>\raw@text</code>, instead of onto the current vertical list. The <code>\ifnumberedpar@</code> flag will be <code>true</code> while a paragraph is being processed in that way. <code>\num@lines</code> will store the number of lines in the paragraph when it's complete. When we chop it up into lines, each line in turn goes into the <code>\one@line</code> register, and <code>\par@line</code> will be the number of that line within the paragraph.</p>
--	--

```

1191 \newbox\raw@text
1192 \newif\ifnumberedpar@
1193 \newcount\num@lines
1194 \newbox\one@line
1195 \newcount\par@line

```

<pre> \pstart \AtEveryPstart \numberpstarttrue \numberpstartfalse \labelpstarttrue \labelpstartfalse \thepstart </pre>	<p><code>\pstart</code> starts the paragraph by clearing the <code>\inserts@list</code> list and other relevant variables, and then arranges for the subsequent text to go into the <code>\raw@text</code> box. <code>\pstart</code> needs to appear at the start of every paragraph that's to be numbered; the <code>\autopar</code> command below may be used to insert these commands automatically.</p>
--	---

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.

```

1196
1197 \newcommand{\AtEveryPstart}[1]{%
1198   \ifstrempy{#1}%
1199     {\xdef\at@every@pstart{}}%
1200     {\xdef\at@every@pstart{\noindent\unexpanded{#1}}}%
1201 }%
1202 \xdef\at@every@pstart{}%
1203
1204 \newcounter{pstart}
1205 \renewcommand{\thepstart}{\bfseries\@arabic\c@pstart}. }
1206 \newif\ifnumberpstart
1207 \numberpstartfalse
1208 \newif\iflabelpstart
1209 \labelpstartfalse
1210 \newcommandx*{\pstart}[1][1]{%
1211   \normal@pars%
1212   \ifstrempy{#1}{\at@every@pstart}{\noindent#1}%
1213   \ifautopar%
1214     \autopar%
1215   \fi%
1216   \ifluatex%
1217     \edef\l@luatexttextdir@L{\the\luatexttextdir}%
1218   \fi%
1219   \if@nbreak%
1220     \let\@oldnbreak\@nbreaktrue%
1221   \else%
1222     \let\@oldnbreak\@nbreakfalse%
1223   \fi%
1224   \@nbreaktrue%
1225   \ifnumbering \else%
1226     \led@err@PstartNotNumbered%
1227     \beginnumbering%
1228   \fi%
1229   \ifnumberedpar%
1230     \led@err@PstartInPstart%
1231   \pend%
1232   \fi%
1233   \list@clear{\inserts@list}%
1234   \global\let\next@insert=\empty%
1235   \begingroup\normal@pars%
1236   \global\advance \l@dnumpstartsL\@ne
1237   \global\setbox\raw@text=\vbox\bgroup%
1238     \ifautopar\else%
1239     \ifnumberpstart%
1240       \ifinstanza\else%
1241       \ifsidepstartnum\else%
1242         \thepstart%
1243       \fi%
1244     \fi%
1245     \fi%

```



```

1246     \fi%
1247     \numberedpar@true%
1248     \iflabelpstart\protected@edef\@currentlabel%
1249         {\p@pstart\thepstart}
1250     \fi%
1251     \l@dzeropenalties%
1252 }

```

\pend \pend must be used to end a numbered paragraph.

```

1253 \newcommand*{\pend}[1][1]{\ifnumbering \else%
1254     \led@err@PendNotNumbered%
1255     \fi%
1256     \global\l@dskipversenumberfalse%
1257     \ifnumberedpar@ \else%
1258         \led@err@PendNoPstart%
1259     \fi%

```

We set all the usual interline penalties to zero and then immediately call \endgraf to end the paragraph; this ensures that there'll 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 aren't any more lines left.

```

1260     \l@dzeropenalties%
1261     \endgraf\global\num@lines=\prevgraf\egroup%
1262     \global\par@line=0%

```

We check if lineation is by pstart: in this case, we reset line number, but only in the second line of the pstart, to prevent some trouble. We can't reset line number at the beginning of \pstart \setline is parsed at the end of previous \pend, and so, we must do it at the end of first line of pstart.

```

1263     \csnumdef{pstartline}{0}%
1264     \loop\ifvbox\raw@text%
1265         \csnumdef{pstartline}{\pstartline+1}%
1266         \do@line%
1267         \ifbypstart@%
1268             \ifnumequal{pstartline}{1}{\setline{1}\resetprevline@}{}%
1269         \fi%
1270     \repeat%

```

Deal with any leftover notes, and then end the group that was begun in the \pstart.

```

1271     \flush@notes%
1272     \endgroup%
1273     \ignorespaces%
1274     \ifnumberpstart%
1275         \pstartnumtrue%
1276     \fi%
1277     \@oldnobreak%
1278     \addtocounter{pstart}{1}%

```

```

1279 \normal@pars%
1280 \ifstrempy{#1}{\at@every@pend}{\noindent#1}%
1281 \ifautopar%
1282   \autopar%
1283 \fi%
1284 }
1285
\AtEveryPend
\at@every@pend 1286
1287 \newcommand{\AtEveryPend}[1]{%
1288   \ifstrempy{#1}%
1289     {\xdef\at@every@pend{}}%
1290     {\xdef\at@every@pend{\noindent\unexpanded{#1}}}%
1291 }%
1292 \xdef\at@every@pend{}%
1293
\l@dzeroopenalties  A macro to zero penalties for \pend or \pstart.
1294 \newcommand*{\l@dzeroopenalties}{%
1295   \brokenpenalty \z@ \clubpenalty \z@
1296   \displaywidowpenalty \z@ \interlinepenalty \z@ \predisplaypenalty \z@
1297   \postdisplaypenalty \z@ \widowpenalty \z@}
1298

```

**\autopar** In most cases it's 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 don't 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's been added for this paragraph. Then we start again with **\pstart**, restoring the indentation that we saved, and locally change **\par** so that it'll do our **\pend** for us.

```

1299 \newif\ifautopar
1300 \autoparfalse
1301 \newcommand*{\autopar}{
1302   \ifledRcol
1303     \ifnumberingR \else
1304     \led@err@AutoparNotNumbered
1305     \beginnumberingR
1306     \fi
1307   \else
1308     \ifnumbering \else
1309     \led@err@AutoparNotNumbered
1310     \beginnumbering
1311     \fi
1312   \fi
1313   \autopartrue
1314   \everypar{\setbox0=\lastbox
1315     \endgraf \vskip-\parskip
1316     \pstart \noindent \kern\wd0 \ifnumberpstart\ifinstanza\else\thepstart\fi\fi
1317     \let\par=\pend}%
1318   \ignorespaces}

```

`\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'll want to do this within a footnotes, for example.

```

1319 \newcommand*{\normal@pars}{\everypar{}\let\par\endgraf}
1320

```

`\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.

```

1321 \newif\ifautopar@pause

```

## 23.2 Processing one line

`\do@line` The `\do@line` macro is called by `\pend` to do all the processing for a single line of text.

```

1322 \newcommand*{\l@dunhbox@line}[1]{\unhbox #1}
1323 \newcommand*{\do@line}{%
1324   {\vbadness=10000
1325     \splittopskip=\z@
1326     \do@linehook
1327   \l@emptyd@ta
1328     \global\setbox\one@line=\vsplit\raw@text to\baselineskip}%
1329   \unvbox\one@line \global\setbox\one@line=\lastbox
1330   \getline@num
1331   \IfStrEq{\led@pb@setting}{before}{\led@check@pb\led@check@nopb}{-}
1332   \ifnum\@lock>\@ne
1333     \inserthangingsymboltrue
1334   \else

```

```

1335 \inserthangingsymbolfalse
1336 \fi
1337 \check@pb@in@verse
1338 \ifl@dhidenumber%
1339 \global\l@dhidenumberfalse%
1340 \f@x@l@cks%
1341 \else%
1342 \affixline@num%
1343 \fi%

```

Depending whether a sectioning command is called at this pstart or not we print sectioning command or normal line,

```

1344 \xifinlist{\the\l@dnumpstartsL}{\eled@sections@}%
1345 {\print@eledsection}%
1346 {\print@line}%
1347 \IfStrEq{\led@pb@setting}{after}{\led@check@pb\led@check@nopb}{%}
1348 }%

```

`\print@line` `\print@line` is for normal line, i. e. line without sectioning command.

```

1349 \def\print@line{

```

Insert the pstart number in side, if we are in the first line of a pstart.

```

1350 \affixpstart@num%

```

The line will be boxed, to have the good width.

```

1351 \hb@xt@ \linewidth{%

```

User hook.

```

1352 \do@insidelinehook%

```

Left line number

```

1353 \l@dld@ta%

```

Restore marginal and footnotes.

```

1354 \add@inserts\affixside@note%

```

Print left notes.

```

1355 \l@dlsn@te

```

Boxes the line, writes information about new line in the numbered file.

```

1356 {\ledllfill\hb@xt@ \wd\one@line{\new@line%

```

If we use Lua<sup>A</sup>T<sub>E</sub>X then restore the direction.

```

1357 \ifluatex%

```

```

1358 \luatextextdir\l@luatextextdir@L%

```

```

1359 \fi%

```

Insert, if needed, the hanging symbol.

```

1360 \inserthangingsymbol %Space kept for backward compatibility

```

And so, print the line.

```

1361 \l@dunhbox@line{\one@line}}%

```

Right line number

```

1362 \ledrlfill\l@drd@ta%

```

Print right notes.

```
1363 \l@drsn@te
1364 }}%
```

And reinsert penalties (for page breaking)...

```
1365 \add@penalties%
1366 }
```

`\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.

```
1367 \def\print@eledsection{%
1368 \add@inserts\affixside@note%
1369 \numdef{\temp@}{\l@dnumpstartsL-1}%
1370 \xifinlist{\temp@}{\eled@sections@@}{\@nobreaktrue}{\@nobreakfalse}%
1371 \@eled@sectioningtrue%
1372 \csuse{eled@sectioning@the\l@dnumpstartsL}%
1373 \@eled@sectioningfalse%
1374 \global\csundef{eled@sectioning@the\l@dnumpstartsL}%
1375 \if@RTL%
1376 \hspace{-3\paperwidth}%
1377 {\hbox{\l@dunhbox@line{\one@line}} \new@line}%
1378 \else%
1379 \hspace{3\paperwidth}%
1380 {\new@line \hbox{\l@dunhbox@line{\one@line}}}%
1381 \fi%
1382 \vskip-\baselineskip%
1383 }
```

`\dolinehook` These high level commands just redefine the low level commands. They have to be used by user, without `\makeatletter`.

```
1384 \newcommand*\dolinehook[1]{\gdef\do@linehook{#1}}%
1385 \newcommand*\doinsidelinehook[1]{\gdef\do@insidelinehook{#1}}%
1386
```

`\do@linehook` Two hooks into `\do@line`. The first is called at the beginning of `\do@line`, the second is called in the line box. The second can, for example, have a `\markboth` command inside, the first can't.

```
1387 \newcommand*\do@linehook{}
1388 \newcommand*\do@insidelinehook{}
```

`\l@emptyd@ta` Nulls the `\...d@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 notes.

```
\l@dcsnotetext 1389 \newcommand*\l@emptyd@ta{%
\l@dcsnotetext@l 1390 \gdef\l@dld@ta{}%
\l@dcsnotetext@r 1391 \gdef\l@drd@ta{}%
```

```

1392 \gdef\l@dcstotetext@l{%
1393 \gdef\l@dcstotetext@r{%
1394 \gdef\l@dcstotetext{}
1395

```

`\l@dlsn@te` Zero width boxes of the left and right side notes, together with their kerns.

```

\l@drsn@te 1396 \newcommand{\l@dlsn@te}{%
1397 \hb@xt@ \z@{\hss\box\l@dlp@rbox\kern\ledlsnotesep}}
1398 \newcommand{\l@drsn@te}{%
1399 \hb@xt@ \z@{\kern\ledrsnotesep\box\l@drp@rbox\hss}}
1400

```

`\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`.

```

1401 \newcommand*{\ledllfill}{\hfil}
1402 \newcommand*{\ledrlfill}{\hfil}
1403

```

### 23.3 Line and page number computation

`\getline@num` The `\getline@num` macro determines the page and line numbers for the line we're about to send to the vertical list.

```

1404 \newcommand*{\getline@num}{%
1405 \global\advance\absline@num \@ne%
1406 \do@actions
1407 \do@ballast
1408 \ifnumberline
1409 \ifsublines@
1410 \ifnum\sub@lock<\tw@
1411 \global\advance\subline@num \@ne
1412 \fi
1413 \else
1414 \ifnum\@lock<\tw@
1415 \global\advance\line@num \@ne
1416 \global\subline@num \z@
1417 \fi
1418 \fi
1419 \fi
1420 }

```

`\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,  $\text{\TeX}$  will be given extra encouragement to break the page here (see 24.3 p. 119).

`\ballast@count` First we set up the required counters; they are initially set to zero, and will remain  
`\c@ballast` so unless you say `\setcounter{ballast}{\langle some figure \rangle}` in your document.

```
1421 \newcount\ballast@count
1422 \newcounter{ballast}
1423 \setcounter{ballast}{0}
```

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.

```
1424 \newcommand*{\do@ballast}{\global\ballast@count \z@
1425 \begingroup
1426 \advance\absline@num \@ne
1427 \ifnum\next@actionline=\absline@num
1428 \ifnum\next@action>-1001\relax
1429 \global\advance\ballast@count by -\c@ballast
1430 \fi
1431 \fi
1432 \endgroup}
```

`\do@actions` The `\do@actions` macro looks at the list of actions to take at particular absolute  
`\do@actions@next` line numbers, and does everything that's 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's just `\relax`.

```
1433 \newcommand*{\do@actions}{%
1434 \global\let\do@actions@next=\relax
1435 \ifnum\absline@num<\next@actionline\else
```

First, page number changes, which will generally be the most common actions.

If we're restarting lineation on each page, this is where it happens.

```
1436 \ifnum\next@action>-1001
1437 \global\page@num=\next@action
1438 \ifbypage@
1439 \global\line@num=\z@ \global\subline@num=\z@
1440 \resetprevline@
1441 \fi
```

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`.)

```
1442 \else
1443 \ifnum\next@action<-4999
1444 \@l@dtmpcnta=-\next@action
1445 \advance\@l@dtmpcnta by -5001
1446 \ifsublines@
1447 \global\subline@num=\@l@dtmpcnta
1448 \else
1449 \global\line@num=\@l@dtmpcnta
1450 \fi
```

It's one of the fixed codes. We rescale the value in `\@l@dttempcnta` so that we can use a case statement.

```

1451      \else
1452          \@l@dttempcnta=-\next@action
1453          \advance\@l@dttempcnta by -1000
1454          \do@actions@fixedcode
1455      \fi
1456  \fi

```

Now we get information about the next action off the list, and then set `\do@actions@next` so that we'll call ourself recursively: the next action might also be for this line.

There's no warning if we find `\actionlines@list` empty, since that will always happen near the end of the section.

```

1457      \ifx\actionlines@list\empty
1458          \gdef\next@actionline{1000000}%
1459      \else
1460          \glp\actionlines@list\to\next@actionline
1461          \glp\actions@list\to\next@action
1462          \global\let\do@actions@next=\do@actions
1463      \fi
1464  \fi

```

Make the recursive call, if necessary.

```

1465 \do@actions@next}
1466

```

`\do@actions@fixedcode` This macro handles the fixed codes for `\do@actions`. It is one big case statement.

```

1467 \newcommand*{\do@actions@fixedcode}{%
1468     \ifcase\@l@dttempcnta
1469     \or%                               % 1001
1470         \global\sublines@true
1471     \or%                               % 1002
1472         \global\sublines@false
1473     \or%                               % 1003
1474         \global\@lock=\@ne
1475     \or%                               % 1004
1476         \ifnum\@lock=\tw@
1477             \global\@lock=\thr@@
1478         \else
1479             \global\@lock=\z@
1480         \fi
1481     \or%                               % 1005
1482         \global\sub@lock=\@ne
1483     \or%                               % 1006
1484         \ifnum\sub@lock=\tw@
1485             \global\sub@lock=\thr@@
1486         \else

```



```

1487     \global\sub@lock=\z@
1488     \fi
1489     \or%                % 1007
1490     \l@dskipnumbertrue
1491     \or%                % 1008
1492     \l@dskipversenumbertrue%
1493     \or%                % 1009
1494     \l@dhidenumbertrue
1495     \else
1496     \led@warn@BadAction
1497     \fi}
1498
1499

```

## 24 Line number printing

`\affixline@num` `\affixline@num` originally took a single argument, a series of commands for printing the line just split off by `\do@line`; it put that line back on the vertical list, and added a line number if necessary. It now 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:

$$\begin{aligned}
 n &= \text{int}((\text{linenum} - \text{firstlinenum}) / \text{linenumincrement}) \\
 m &= \text{firstlinenum} + (n \times \text{linenumincrement})
 \end{aligned}$$

(where *int* truncates a real number to an integer). *m* will be equal to *linenum* only if we're 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@dttempcnta`, 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@dttempcntb` for comparison.

First, the case when we're within a sub-line range.

```

1500 \newcommand*{\affixline@num}{%

```

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).

```

1501     \ifledgroupnotesL@else
1502     \ifnumberline
1503     \ifl@dskipnumber
1504         \global\l@dskipnumberfalse
1505     \else
1506         \ifsublines@
1507             \l@dttempcntb=\subline@num
1508             \ifnum\subline@num>\c@firstsublinenum

```

```

1509      \@l@dttempcnta=\subline@num
1510      \advance\@l@dttempcnta by-\c@firstsublinenum
1511      \divide\@l@dttempcnta by\c@sublinenumincrement
1512      \multiply\@l@dttempcnta by\c@sublinenumincrement
1513      \advance\@l@dttempcnta by\c@firstsublinenum
1514      \else
1515      \@l@dttempcnta=\c@firstsublinenum
1516      \fi

```

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.

```

1517      \ch@cksub@l@ck

```

Now the line number case, which works the same way.

```

1518      \else
1519      \@l@dttempcntb=\line@num
      Check on the \linenumberlist If it's \empty use the standard algorithm.
1520      \ifx\linenumberlist\empty
1521      \ifnum\line@num>\c@firstlinenum
1522      \@l@dttempcnta=\line@num
1523      \advance\@l@dttempcnta by-\c@firstlinenum
1524      \divide\@l@dttempcnta by\c@linenumincrement
1525      \multiply\@l@dttempcnta by\c@linenumincrement
1526      \advance\@l@dttempcnta by\c@firstlinenum
1527      \else
1528      \@l@dttempcnta=\c@firstlinenum
1529      \fi
1530      \else

```

The \linenumberlist wasn't \empty, so here's Wayne's numbering mechanism. This takes place in TeX's mouth.

```

1531      \@l@dttempcnta=\line@num
1532      \edef\rem@inder{\,\linenumberlist,\number\line@num,}%
1533      \edef\sc@n@list{\def\noexpand\sc@n@list
1534      ###1,\number\@l@dttempcnta,###2|{\def\noexpand\rem@inder{###2}}}%
1535      \sc@n@list\expandafter\sc@n@list\rem@inder|
1536      \ifx\rem@inder\empty%
1537      \advance\@l@dttempcnta\@ne
1538      \fi
1539      \fi

```

A locking check for lines, just like the version for sub-line numbers above.

```

1540      \ch@ck@l@ck
1541      \fi

```

The following tests are true if we need to print a line number.

```

1542      \ifnum\@l@dttempcnta=\@l@dttempcntb
1543      \ifl@dskipversenumber\else

```

If we got here, we're 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's 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's even for left-margin numbers and odd for right-margin numbers.

For L<sup>A</sup>T<sub>E</sub>X we have to consider two column documents as well. In this case I think 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 1544          \if@twocolumn
1545              \if@firstcolumn
1546                  \gdef\l@dld@ta{\llap{{\leftlinenum}}}%
1547              \else
1548                  \gdef\l@drd@ta{\rlap{{\rightlinenum}}}%
1549              \fi
1550          \else
```

Continuing the original code ...

```
1551              \@l@tempcntb=\line@margin
1552              \ifnum\@l@tempcntb>\@ne
1553                  \advance\@l@tempcntb \page@num
1554              \fi
```

Now print the line (#1) with its page number.

```
1555              \ifodd\@l@tempcntb
1556                  \gdef\l@drd@ta{\rlap{{\rightlinenum}}}%
1557              \else
1558                  \gdef\l@dld@ta{\llap{{\leftlinenum}}}%
1559              \fi
1560          \fi
1561      \fi
1562  \fi
```

Now fix the lock counters, if necessary. A value of 1 is advanced to 2; 3 advances to 0; other values are unchanged.

```
1563      \f@x@l@cks
1564      \fi
1565  \fi
1566  \fi
1567 }
1568
```

`\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  
`\f@x@l@cks` the counters to arbitrary but unequal values.

```

1569 \newcommand*{\ch@cksub@l@ck}{%
1570     \ifcase\sub@lock
1571     \or
1572         \ifnum\sublock@disp=\@ne
1573             \@l@dttempcntb=\z@ \@l@dttempcnta=\@ne
1574         \fi
1575     \or
1576         \ifnum\sublock@disp=\tw@ \else
1577             \@l@dttempcntb=\z@ \@l@dttempcnta=\@ne
1578         \fi
1579     \or
1580         \ifnum\sublock@disp=\z@
1581             \@l@dttempcntb=\z@ \@l@dttempcnta=\@ne
1582         \fi
1583 \fi}

```

Similarly for line numbers.

```

1584 \newcommand*{\ch@ck@l@ck}{%
1585     \ifcase\@lock
1586     \or
1587         \ifnum\lock@disp=\@ne
1588             \@l@dttempcntb=\z@ \@l@dttempcnta=\@ne
1589         \fi
1590     \or
1591         \ifnum\lock@disp=\tw@ \else
1592             \@l@dttempcntb=\z@ \@l@dttempcnta=\@ne
1593         \fi
1594     \or
1595         \ifnum\lock@disp=\z@
1596             \@l@dttempcntb=\z@ \@l@dttempcnta=\@ne
1597         \fi
1598 \fi}

```

Fix the lock counters. A value of 1 is advanced to 2; 3 advances to 0; other values are unchanged.

```

1599 \newcommand*{\f@x@l@cks}{%
1600     \ifcase\@lock
1601     \or
1602         \global\@lock=\tw@
1603     \or \or
1604         \global\@lock=\z@
1605     \fi
1606     \ifcase\sub@lock
1607     \or
1608         \global\sub@lock=\tw@
1609     \or \or
1610         \global\sub@lock=\z@
1611     \fi}
1612

```

`\pageparbreak` Because of TeX's asynchronous page breaking mechanism we can never be sure

juust where it will make a break and, naturally, it has already decided exactly how it will typeset any remainder of a paragraph that crosses the break. This is disconcerting when trying to number lines by the page or put line numbers in different margins. This macro tries to force an invisible paragraph break and a page break.

```
1613 \newcommand{\pageparbreak}{\pend\newpage\pstart\noindent}
1614
```

## 24.1 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's tried in the `\leftpstartnum` and `\rightpstartnum` commands. After the try, it is set to FALSE.

```
\leftpstartnum
\rightpstartnum 1615
\ifsidepstartnum 1616 \newif\ifsidepstartnum
1617 \newcommand*{\affixpstart@num}{%
1618   \ifsidepstartnum
1619     \if@twocolumn
1620       \if@firstcolumn
1621         \gdef\l@dld@ta{\llap{\leftpstartnum}}}%
1622       \else
1623         \gdef\l@drd@ta{\rlap{\rightpstartnum}}}%
1624       \fi
1625     \else
1626       \@l@tempcntb=\line@margin
1627       \ifnum\@l@tempcntb>\@ne
1628         \advance\@l@tempcntb \page@num
1629       \fi
1630       \ifodd\@l@tempcntb
1631         \gdef\l@drd@ta{\rlap{\rightpstartnum}}}%
1632       \else
1633         \gdef\l@dld@ta{\llap{\leftpstartnum}}}%
1634       \fi
1635     \fi
1636   \fi
1637 }
1638 }
1639 %
1640
```

```

1641 \newif\ifpstartnum
1642 \pstartnumtrue
1643 \newcommand*{\leftpstartnum}{
1644     \ifpstartnum\thepstart
1645     \kern\linenumsep\fi
1646     \global\pstartnumfalse
1647 }
1648 \newcommand*{\rightpstartnum}{
1649     \ifpstartnum
1650     \kern\linenumsep
1651     \thepstart
1652     \fi
1653     \global\pstartnumfalse
1654 }

```

## 24.2 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.

```
1655 \list@create{\inserts@list}
```

`\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's just `\relax`.

```

1656 \newcommand*{\add@inserts}{%
1657     \global\let\add@inserts@next=\relax

```

If `\inserts@list` is empty, there aren't any more notes or insertions for this paragraph, and we needn't waste our time.

```
1658 \ifx\inserts@list\empty \else
```

The `\next@insert` macro records the number of the line that receives the next footnote or other insert; it's empty when we start out, and just after we've affixed a note or insert.

```

1659 \ifx\next@insert\empty
1660     \ifx\insertlines@list\empty
1661         \global\noteschanged@true
1662         \gdef\next@insert{100000}%
1663     \else
1664         \gl@p\insertlines@list\to\next@insert
1665     \fi
1666 \fi

```

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'll call ourself recursively: there might be another insert for this same line.

```

1667 \ifnum\next@insert=\absline@num
1668 \gl@p\inserts@list\to\@insert
1669 \@insert
1670 \global\let\@insert=\undefined
1671 \global\let\next@insert=\empty
1672 \global\let\add@inserts@next=\add@inserts
1673 \fi
1674 \fi

```

Make the recursive call, if necessary.

```

1675 \add@inserts@next}
1676

```

### 24.3 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're 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 (23.3 p. 110).

Finally, the penalty is checked to see that it doesn't go below  $-10000$ .

```

1677 \newcommand*{\add@penalties}{\@l@tempcnta=\ballast@count
1678 \ifnum\num@lines>\@ne
1679 \global\advance\par@line \@ne
1680 \ifnum\par@line=\@ne
1681 \advance\@l@tempcnta \clubpenalty
1682 \fi
1683 \@l@tempcntb=\par@line \advance\@l@tempcntb \@ne
1684 \ifnum\@l@tempcntb=\num@lines
1685 \advance\@l@tempcnta \widowpenalty
1686 \fi
1687 \ifnum\par@line<\num@lines
1688 \advance\@l@tempcnta \interlinepenalty
1689 \fi
1690 \fi
1691 \ifnum\@l@tempcnta=\z@
1692 \relax
1693 \else
1694 \ifnum\@l@tempcnta>-10000
1695 \penalty\@l@tempcnta
1696 \else
1697 \penalty -10000

```

```

1698     \fi
1699     \fi}
1700

```

## 24.4 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 last run of  $\text{\TeX}$ , then there can be leftover notes that haven't yet been printed. An appropriate error message will be printed elsewhere; but it's best to go ahead and print these notes somewhere, even if it's 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's not too far from the proper location, to which they'll move on the next run.

```

1701 \newcommand*{\flush@notes}{%
1702   \@xloop
1703   \ifx\inserts@list\empty \else
1704     \glp\inserts@list\to\@insert
1705     \@insert
1706     \global\let\@insert=\undefined
1707   \repeat}
1708

```

`\@xloop` `\@xloop` is a variant of the PLAIN  $\text{\TeX}$  `\loop` macro, useful when it's hard to construct a positive test using the  $\text{\TeX}$  `\if` commands—as in `\flush@notes` above. One says `\@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  $\text{\TeX}$  `\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 Kabelschacht in *TUGboat* 8 (1987), pp. 184–5.

```

1709 \def\@xloop#1\repeat{%
1710   \def\body{#1\expandafter\body\fi}%
1711   \body}
1712

```

## 25 Critical footnotes

The footnote macros are adapted from those in PLAIN  $\text{\TeX}$ , 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 five separate levels of the footnotes, not just one; and there are options to reformat footnotes into paragraphs or into multiple columns.



## 25.1 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@lemmfont \select@lemmfont is provided to set the right font for the lemma in a note.
\select@@lemmfont 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.
1713 \def\select@lemmfont#1|#2|#3|#4|#5|#6|#7|{\select@lemmfont#7|}
1714 \def\select@@lemmfont#1/#2/#3/#4|{%
1715     {\fontencoding{#1}\fontfamily{#2}\fontseries{#3}\fontshape{#4}%
1716     \selectfont}
1717
```

## 25.2 Outer-level footnote commands

`\footnoteoptions@` The `\footnoteoption@`[*side*][*options*][*value*] change the value of on options of Xfootnote, to switch between true and false.

```
1718 \newcommand*{\footnoteoptions@}[3][1=L,usedefault]{%
1719     \def\do##1{%
1720         \ifstrequal{#1}{L}{% In Leftside
1721             \xright@appenditem{\global\noexpand\settoggle{##1@}{#3}}\to\inserts@list% Switch toogle, in all d
1722             \global\advance\insert@count \@ne% Increment the left insert counter.
1723         }%
1724         {%
1725             \xright@appenditem{\global\noexpand\settoggle{##1@}{#3}}\to\inserts@listR% Switch toogle, in all
1726             \global\advance\insert@countR \@ne% Increment the right insert counter insert.
1727         }%
1728     }%
1729     \notblank{#2}{\docsvlist{#2}}{}}% Parsing all options
1730 }
```

`\footnotelang@lua` `\footnotelang@lua` is called to remember the information about the language of a lemma when LuaLaTeX is used.

```
1731 \newcommand*{\footnotelang@lua}[1][1=L,usedefault]{%
1732     \ifstrequal{#1}{L}{%
1733         \xright@appenditem{{\csxdef{footnote@luatextextdir}{\the\luatextextdir}}}\to\inserts@list%Know the c
1734         \global\advance\insert@count \@ne%
1735         \xright@appenditem{{\csxdef{footnote@luatexpardir}{\the\luatexpardir}}}\to\inserts@list%Know the di
1736         \global\advance\insert@count \@ne%
1737     }%
1738     {%
1739         \xright@appenditem{{\csxdef{footnote@luatextextdir}{\the\luatextextdir}}}\to\inserts@listR%Know the
1740         \global\advance\insert@countR \@ne%
1741         \xright@appenditem{{\csxdef{footnote@luatexpardir}{\the\luatexpardir}}}\to\inserts@listR%Know the d
```

```

1742   \global\advance\insert@countR \@ne%
1743   }%
1744 }

```

`\footnotelang@poly` `\footnotelang@poly` is called to remember the information about the language of a lemma when Polyglossia is used.

```

1745 \newcommand*{\footnotelang@poly}[1][1=L,usedefault]{%
1746   \ifstrequal{#1}{L}{%
1747     \if@RTL%
1748       \xright@appenditem{{\csxdef{footnote@dir}{@RTLtrue}}}{\to\inserts@list%Know the language
1749         \global\advance\insert@count \@ne%
1750     \else
1751       \xright@appenditem{{\csxdef{footnote@dir}{@RTLfalse}}}{\to\inserts@list%Know the language
1752         \global\advance\insert@count \@ne%
1753     \fi%
1754   \xright@appenditem{{\csxdef{footnote@lang}{\expandonce\language}}}{\to\inserts@list%
1755   \global\advance\insert@count \@ne%
1756   }%
1757   {%
1758     \if@RTL
1759       \xright@appenditem{{\csxdef{footnote@dir}{@RTLtrue}}}{\to\inserts@listR%Know the language
1760         \global\advance\insert@countR \@ne%
1761     \else
1762       \xright@appenditem{{\csxdef{footnote@dir}{@RTLfalse}}}{\to\inserts@listR%Know the language
1763         \global\advance\insert@countR \@ne%
1764     \fi
1765   \xright@appenditem{{\csxdef{footnote@lang}{\expandonce\language}}}{\to\inserts@listR%
1766   \global\advance\insert@countR \@ne%
1767   }%
1768 }

```

### 25.3 Normal footnote formatting

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’re 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`.

`\normalvfootnote` We now begin a series of commands that do ‘normal’ footnote formatting: a format

much like that implemented in PLAIN  $\TeX$ , 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.

```
1769 \notbool{parapparatus@}{\newcommand*}{\newcommand}{\normalvfootnote}[2]{%
1770   \insert\csname #1footins\endcsname\bgroup
1771   \csuse{bhookXnote@#1}
1772   \csuse{Xnotefontsize@#1}
1773   \footssplitsskips
1774   \ifl@dpairing\ifl@dpadding\else%
1775     \setXnoteswidthliketwocolumns@{#1}%
1776   \fi\fi%
1777   \setXnotespositionliketwocolumns@{#1}%
1778   \spaceskip=\z@skip \xspaceskip=\z@skip
1779   \csname #1footfmt\endcsname #2[#1]\egroup}
```

`\footssplitsskips` 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  $\LaTeX$  `\floatingpenalty`.

```
1780 \newcommand*{\footssplitsskips}{%
1781   \interlinepenalty=\interfootnotelinepenalty
1782   \unless\ifl@dprintingpages%
1783     \floatingpenalty=\@MM%
1784   \fi%
1785   \splittopskip=\ht\strutbox \splitmaxdepth=\dp\strutbox
1786   \leftskip=\z@skip \rightskip=\z@skip}
1787
```

`\mpnormalvfootnote` And a somewhat different version for minipages.

```
1788 \notbool{parapparatus@}{\newcommand*}{\newcommand}{\mpnormalvfootnote}[2]{%
1789   \global\setbox\@nameuse{mp#1footins}\vbox{%
1790     \unvbox\@nameuse{mp#1footins}
1791     \csuse{bhookXnote@#1}
1792     \csuse{Xnotefontsize@#1}
1793     \hsize\columnwidth
1794     \@parboxrestore}
```

```

1795 \color@begingroup
1796 \csname #1footfmt\endcsname #2[#1]\color@endgroup}}
1797

```

`\ledsetnormalparstuff@common` `\normalfootfmt` is a ‘normal’ macro to take the footnote line and page number information (see 21.3 p. 72), and the desired text, and output what’s to be printed.

`\Xledsetnormalparstuff` 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; it’s intended to be copied and modified as necessary.

`\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).

```

1798 \newcommand*{\ledsetnormalparstuff}{%
1799 \led@war@ledsetnormalparstuffDeprecated%
1800 \ifluatex%
1801 \luatextextdir\footnote@luatextextdir%
1802 \luatexpardir\footnote@luatexpardir%
1803 \fi%
1804 \csuse{\csuse{footnote@dir}}}%
1805 \normal@pars%
1806 \noindent \parfillskip \z@ \@plus 1fil}%
1807
1808 \newcommand*{\ledsetnormalparstuff@common}{%
1809 \ifluatex%
1810 \luatextextdir\footnote@luatextextdir%
1811 \luatexpardir\footnote@luatexpardir%
1812 \fi%
1813 \csuse{\csuse{footnote@dir}}}%
1814 \normal@pars%
1815 \parfillskip \z@ \@plus 1fil}%
1816
1817 \newcommand*{\Xledsetnormalparstuff}[1]{%
1818 \ledsetnormalparstuff@common%
1819 \nottoggle{Xparindent@#1}{\noindent}{}%\noindent and and not \parindent=0pt to avoid to bre
1820 }%
1821
1822 \newcommand*{\ledsetnormalparstuffX}[1]{%
1823 \ledsetnormalparstuff@common%
1824 \nottoggle{parindentX@#1}{\noindent}{}%\noindent and and not \parindent=0pt to avoid to bre
1825 }%
1826
1827 \notbool{parapparatus@}{\newcommandx*}{\newcommandx}{\normalfootfmt}[4][4=Z]{% 4th arg is c
1828 \Xledsetnormalparstuff{#4}%
1829 \hangindent=\csuse{Xhangindent@#4}
1830 \strut{\printlinefootnote{#1}{#4}}%
1831 {\nottoggle{Xlemmadisablefontselection@#4}{\select@lemmafnt#1|#2}{#2}}%
1832 \iftoggle{nosep@}{\hskip\csuse{inplaceoflemmaseparator@#4}}{\ifcsemtyp{lemmaseparator@#4}

```

```

1833     {\hskip\csuse{inplaceoflemmaseparator@#4}}%
1834     {\nobreak\hskip\csuse{beforelemmaseparator@#4}\csuse{lemmaseparator@#4}\hskip\csuse{afterlemmasepa
1835     }}%
1836     #3\strut\par}

```

**\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.

```

1837 \def\endashchar{\textnormal{--}}
1838 \newcommand*{\fullstop}{\textnormal{.}}
1839 \newcommand*{\rbracket}{\textnormal{%
1840     \csuse{text\csuse{footnote@lang}}}%
1841     \ifluatex%
1842         \ifdefstring{\footnote@luatextextdir}{TRT}{\thinspace[]\thinspace}}%
1843         \else%
1844             \thinspace}%
1845         \fi}%
1846 }%
1847 }
1848

```

**\printpstart** The **\printpstart** macro prints the pstart number for a note.

```

1849 \newcommand{\printpstart}[0]{%
1850     \ifboolexpr{bool{!@dpairing} or bool{!@dprintingpages} or bool{!@dprintingcolumns}}{%
1851         \ifledRcol%
1852             \thepstartR%
1853         \else%
1854             \thepstartL%
1855         \fi%
1856     }{%
1857         \thepstart%
1858     }%
1859 }

```

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 21.3 p. 72: 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.

The original EDMAC code used several counters at this point, saying:

To simplify the logic, we use a lot of counters to tell us which numbers need to get printed (using 1 for yes, 0 for no, so that `\ifodd` tests for ‘yes’). The counter assignments are:

- `\@pnum` for page numbers;
- `\@ssub` for starting sub-line;
- `\@elin` for ending line;
- `\@esl` for ending sub-line; and
- `\@dash` for the dash between the starting and ending groups.

There’s no counter for the line number because it’s always printed.

L<sup>A</sup>T<sub>E</sub>X tends to use a lot of counters and packages should try and minimise the number of new ones they create. In line with this Peter Wilson has reverted to traditional booleans.

Maïeul Rouquette has added `\ifl@d@twolines` and `\ifl@d@morethantwolines` to print a symbol which stands for “and subsequent” when there are two, three or more lines.

```

\ifl@d@pnum
\ifl@d@ssub 1860 \newif\ifl@d@pnum
\ifl@d@elin 1861 \newif\ifl@d@ssub
\ifl@d@esl 1862 \newif\ifl@d@elin
\ifl@d@dash 1863 \newif\ifl@d@esl
\ifl@d@twolines 1864 \newif\ifl@d@dash
\ifl@d@morethantwolines 1865 \newif\ifl@d@twolines%
1866 \newif\ifl@d@morethantwolines%

\l@dp@rsefootsspec \l@dp@rsefootsspec{<spec>}{<lemma>}{<text>} parses a footnote specification.
\l@dp@rsefootsspec <lemma> and <text> are the lemma and text respectively. <spec> is the line and
\l@dp@rsefootsspec page number and lemma font specifier in \l@d@nums style format. The real work
\l@dp@rsefootsspec is done by \l@dp@rsefootsspec which defines macros holding the numeric values.
\l@dp@rsefootsspec 1867 \newcommand*{\l@dp@rsefootsspec}[3]{\l@dp@rsefootsspec#1|}
\l@dp@rsefootsspec 1868 \def\l@dp@rsefootsspec#1|#2|#3|#4|#5|#6|#7|{%
\l@dp@rsefootsspec 1869 \gdef\l@dp@rsefootsspec#1%
\l@dp@rsefootsspec 1870 \gdef\l@dp@rsefootsspec#2%
1871 \gdef\l@dp@rsefootsspec#3%
1872 \gdef\l@dp@rsefootsspec#4%
1873 \gdef\l@dp@rsefootsspec#5%
1874 \gdef\l@dp@rsefootsspec#6%
1875 }

Initialise the several number value macros.
1876 \def\l@dp@rsefootsspec{0}%
1877 \def\l@dp@rsefootsspec{0}%
1878 \def\l@dp@rsefootsspec{0}%
1879 \def\l@dp@rsefootsspec{0}%
1880 \def\l@dp@rsefootsspec{0}%

```

```
1881 \def\l@dparsedendsub{0}%
1882
```

`\setistwofollowinglines` The `\ifistwofollowinglines` boolean, used by the `\twolines` and related tools, 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.

```
1883 \newif\ifistwofollowinglines@%
1884 \newcommand{\setistwofollowinglines}[4]{%
1885   \ifcsdef{lastlinenumberon@#1}%
1886     {\numdef{\tmp}{\csuse{lastlinenumberon@#1}}}%
1887     {\numdef{\tmp}{0}}}%
1888   \istwofollowinglines@false%
1889   \ifnumequal{#4-#2}{1}%
1890     {\istwofollowinglines@true}%
1891     {\ifbypage@%
1892       \ifnumequal{#3-#1}{1}%
1893       {%
1894         \ifnumequal{#2}{\tmp}%
1895         {\ifnumequal{#4}{1}{\istwofollowinglines@true}{}}%
1896         {}%
1897       }%
1898     }%
1899   \fi%
1900 }%
1901 }
```

`\setprintlines` We print the page numbers only if: 1) we're doing the lineation by page, and 2) the ending page number is different from the starting page number.

Just a reminder of the arguments:

```
\printlines   #1      | #2 | #3 | #4 | #5 | #6 | #7
\printlines start-page | line | subline | end-page | line | subline | font
```

The macro `\setprintlines` does the work of deciding what numbers should be printed. Its arguments are the same as the first 6 of `\printlines`.

```
1902 \newcommand*{\setprintlines}[6]{%
1903   \l@dpnumfalse \l@ddashfalse
1904   \ifbypage@
1905     \ifnum#4=#1 \else
1906       \l@dpnumtrue
1907       \l@ddashtrue
1908     \fi
1909   \fi
```

We print the ending line number if: (1) we're printing the ending page number, or (2) it's different from the starting line number.

```
1910   \ifl@dpnum \l@d@elintrue \else \l@d@elinfalse \fi
1911   \ifnum#2=#5 \else
1912     \l@d@elintrue
1913     \l@d@dashtrue
1914   \fi
```

We print the starting sub-line if it's nonzero.

```
1915   \l@d@ssubfalse
1916   \ifnum#3=0 \else
1917     \l@d@ssubtrue
1918   \fi
```

We print the ending sub-line if it's nonzero and: (1) it's different from the starting sub-line number, or (2) the ending line number is being printed.

```
1919   \l@d@eslfalse
1920   \ifnum#6=0 \else
1921     \ifnum#6=#3
1922       \ifl@d@elin \l@d@esltrue \else \l@d@eslfalse \fi
1923     \else
1924       \l@d@esltrue
1925       \l@d@dashtrue
1926     \fi
1927   \fi%
```

However, if the `\twolines` is set for the current series, we don't print the last line number.

```
1928   \ifl@d@dash%
1929   \ifboolexpr{togl{fulllines@} or test{\ifcsemt{twolines@}\@currentseries}}}%
1930     {}%
1931     {%
1932     \setistwofollowinglines{#1}{#2}{#4}{#5}%
1933     \ifboolexpr{%
1934       (%
1935         togl {twolinesbutnotmore@\@currentseries}%
1936         and not%
1937         (%
1938           bool {istwofollowinglines@}%
1939         )%
1940     }
```



```

1940      )%
1941      or%
1942      (%
1943          (not test{\ifnumequal{#1}{#4}})%
1944              and togl{twolinesonlyinsamepage@\@currentseries}%
1945          )%
1946      }%
1947      {}%
1948      {%
1949          \l@d@dashfalse%
1950          \l@d@twolinestrue%
1951          \l@d@elinfalse%
1952          \l@d@eslfalse%
1953          \ifcsemt{morethantwolines@\@currentseries}%
1954              {}%
1955              {\ifistwofollowinglines@\else%
1956                  \l@d@morethantwolinestrue%
1957              }%
1958          }%
1959      }%
1960  }%
1961  \fi%
      End of \setprintlines.
1962 }%

```

`\printlines` Now we're ready to print it all. If the lineation is by `pstart`, we print the `pstart`.

```

1963 \def\printlines#1|#2|#3|#4|#5|#6|#7|{%
1964     \begingroup%
1965     \ifluatex%
1966         \luatextextdir TLT%
1967     \fi%
1968     \setprintlines{#1}{#2}{#3}{#4}{#5}{#6}%

```

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.

```

1969     \ifdimequal{\csuse{boxstartlinenum@\@currentseries}}{0pt}%
1970         {\bgroup}%
1971         {\leavevmode\hbox to \csuse{boxstartlinenum@\@currentseries}\bgroup\hfill}%
1972     \ifl@d@pnum #1\fullstop\fi
1973     \linenumrep{#2}
1974     \ifl@d@ssub \fullstop \sublinenumrep{#3}\fi
1975     \egroup%

```

Then print the dash + end linuber, or the range symbol.

```

1976     \ifdimequal{\csuse{boxendlinenum@\@currentseries}}{0pt}%

```

```

1977     {\bgroup}%
1978     {\hbox to \csuse{boxendlinenum@\@currentseries}\bgroup}%
1979 \ifl@d@twolines%
1980     \ifl@d@morethantwolines%
1981         \csuse{morethantwolines@\@currentseries}%
1982     \else%
1983         \csuse{twolines@\@currentseries}%
1984     \fi%
1985 \else%
1986     \ifl@d@dash \endashchar\fi%
1987     \ifl@d@pnum #4\fullstop\fi%
1988     \ifl@d@elin \linenumrep{#5}\fi%
1989     \ifl@d@esl \ifl@d@elin \fullstop\fi \sublinenumrep{#6}\fi%
1990 \fi%
1991 \ifdimequal{\csuse{boxendlinenum@\@currentseries}}{0pt}%
1992     {}%
1993     {\hfill}%Prevent underfull hbox
1994 \egroup%
1995 \endgroup%
1996 }%

```

`\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 `\skip\footins` 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's used instead of `\skip\footins` for the first printed series.

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 `eledmac` in this respect is general across all footnote types (you can change this). 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`.

```

1997 \newcommand*{\normalfootstart}[1]{%
1998     \ifdimequal{0pt}{\preXnotes@}{}%
1999     {%
2000         \iftoggle{preXnotes@}{%
2001             \togglefalse{preXnotes@}%
2002             \skip\csname #1footins\endcsname=%
2003             \dimexpr\csuse{preXnotes@}+\csuse{afterXrule@#1}\relax%
2004         }%
2005     }%
2006 }%
2007 \vskip\skip\csname #1footins\endcsname%

```

```

2008 \leftskip0pt \rightskip0pt
2009 \ifl@dpairing\else%
2010     \hsize=\old@hsize%
2011 \fi%
2012 \setXnoteswidthliketwocolumns@{#1}%
2013 \setXnotespositionliketwocolumns@{#1}%
2014 \print@Xfootnoterule{#1}%
2015 \noindent\leavevmode}

```

`\normalfootnoterule` `\normalfootnoterule` is a standard footnote-rule macro, for use by a `footstart` macro: just the same as the PLAIN T<sub>E</sub>X footnote rule.

```
2016 \let\normalfootnoterule=\footnoterule
```

`\normalfootgroup` `\normalfootgroup` is a standard footnote-grouping macro: it sends the contents of the footnote-insert box to the output page without alteration.

```

2017 \newcommand*{\normalfootgroup}[1]{%
2018     {\csuse{Xnotefontsize@#1}\noindent\csuse{txtbeforeXnotes@#1}}%
2019     \unvbox\csname #1footins\endcsname%
2020     \hsize=\old@hsize%
2021     }%
2022

```

`\mpnormalfootgroup` A somewhat different version for minipages.

```

2023 \newcommand*{\mpnormalfootgroup}[1]{%
2024     \vskip\skip\@nameuse{mp#1footins}
2025     \ifl@dpairing\ifparledgroup%
2026         \leavevmode\marks\parledgroup@{begin}%
2027         \marks\parledgroup@series{#1}%
2028         \marks\parledgroup@type{Xfootnote}%
2029     \fi\fi\normalcolor%
2030     \ifparledgroup%
2031         \ifl@dpairing%
2032         \else%
2033             \setXnoteswidthliketwocolumns@{#1}%
2034             \setXnotespositionliketwocolumns@{#1}%
2035             \print@Xfootnoterule{#1}%%
2036         \fi%
2037     \else%
2038         \setXnoteswidthliketwocolumns@{#1}%
2039         \setXnotespositionliketwocolumns@{#1}%
2040         \print@Xfootnoterule{#1}%%
2041     \fi%
2042     \setlength{\parindent}{0pt}
2043     {\csuse{Xnotefontsize@#1}\csuse{txtbeforeXnotes@#1}}
2044     \unvbox\csname mp#1footins\endcsname}%
2045

```

## 25.4 Standard footnote definitions

`\footnormal` We can now define all the parameters for the six series of footnotes; initially they use the ‘normal’ footnote formatting, which is set up by calling `\footnormal`. You can switch to another type of formatting by using `\footparagraph`, `\foottwocol`, or `\footthreecol`.

Switching to a variation of ‘normal’ formatting requires changing the quantities defined in `\footnormal`. The best way to proceed would be to make a copy of this macro, with a different name, make your desired changes in that copy, and then invoke it, giving it the letter of the footnote series you wish to control.

(We have not defined baseline skip values like `\baselineskip`, since this is one of the quantities set in `\notefontsetup`.)

What we want to do here is to say something like the following for each footnote series. (This is an example, not part of the actual `eledmac` code.)

```
\skip\Afootins=12pt plus5pt minus5pt
\count\Afootins=1000
\dimen\Afootins=0.8\vsiz
\let\vAfootnote=\normalvfootnote \let\Afootfmt=\normalfootfmt
\let\Afootstart=\normalfootstart \let\Afootgroup=\normalfootgroup
\let\Afootnoterule=\normalfootnoterule
```

Instead of repeating ourselves, we define a `\footnormal` macro that makes all these assignments for us, for any given series letter. This also makes it easy to change from any different system of formatting back to the `normal` setting.

`\ledfootinsdim` Have a constant value for the `\dimen\footins`

```
2046 \newcommand*{\ledfootinsdim}{0.8\vsiz} % kept for backward compatibility, should'nt be used
```

`\preXnotes@` If user redefines `\preXnotes@`, via `\preXnotes` to a value greater than 0 pt, this  
`\preXnotes` skip will be added before first series notes instead of the notes skip.

```
2047 \newtoggle{preXnotes@}
2048 \toggletrue{preXnotes@}
2049 \newcommand{\preXnotes@}{0pt}
2050 \newcommand*{\preXnotes}[1]{\renewcommand{\preXnotes@}{#1}}
```

The same, but for familiar footnotes.

```
\preXnotes
\preXnotes@ 2051 \newtoggle{prenotesX@}
2052 \toggletrue{prenotesX@}
2053 \newcommand{\prenotesX@}{0pt}
2054 \newcommand*{\prenotesX}[1]{\renewcommand{\prenotesX@}{#1}}
```

Now we set up the `\footnormal` macro itself. It takes one argument: the footnote series letter.

```
2055 \newcommand*{\footnormal}[1]{%
2056 \csgdef{series@display#1}{normal}}
```

```

2057 \expandafter\let\csname #1footstart\endcsname=\normalfootstart
2058 \expandafter\let\csname v#1footnote\endcsname=\normalvfootnote
2059 \expandafter\let\csname #1footfmt\endcsname=\normalfootfmt
2060 \expandafter\let\csname #1footgroup\endcsname=\normalfootgroup
2061 \expandafter\let\csname #1footnoterule\endcsname=
2062                                     \normalfootnoterule
2063 \count\csname #1footins\endcsname=1000
2064 \csxdef{default@#1footins}{1000}%Use this to confine the notes to one side only
2065 \dimen\csname #1footins\endcsname=\csuse{maxhXnotes@#1}%
2066 \skip\csname #1footins\endcsname=\csuse{beforeXnotes@#1}%
2067 \advance\skip\csname #1footins\endcsname by\csuse{afterXrule@#1}%

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).

2068 \ifnoledgroup@else%
2069   \expandafter\let\csname mpv#1footnote\endcsname=\mpnormalvfootnote
2070   \expandafter\let\csname mp#1footgroup\endcsname=\mpnormalfootgroup
2071   \count\csname mp#1footins\endcsname=1000
2072   \dimen\csname mp#1footins\endcsname=\csuse{maxhXnotes@#1}%
2073   \skip\csname mp#1footins\endcsname=\csuse{beforeXnotes@#1}%
2074   \advance\skip\csname mp#1footins\endcsname by\csuse{afterXrule@#1}%
2075 \fi
2076 }
2077

```

Some of these values deserve comment: the `\dimen` setting allows 80% of the page to be occupied by notes; the `\skip` setting is deliberately flexible, since pages with lots of notes attached to many of the lines can be a bit hard for T<sub>E</sub>X to make.

## 25.5 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 T<sub>E</sub>Xbook*, pp.398–400, with alterations for our environment. This algorithm uses a considerable amount of save-stack space: a T<sub>E</sub>X of ordinary size may not be able to handle more than about 100 notes of this kind on a page.

**\footparagraph** The `\footparagraph` macro sets up everything for one series of the footnotes so that they'll 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 you are switching to paraphed footnotes after having columnar ones, since they change this value (see below).

It is important to call `\footparagraph` only after `\hsize` has been set for the pages that use this series of notes; otherwise T<sub>E</sub>X 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 `\footparagraph` again afterwards to take account of the new value. The argument of `\footparagraph` is the letter (A–E) denoting the series of notes to be paraphed.

```

2078 \newcommand*{\footparagraph}[1]{%
2079   \csgdef{series@display#1}{paragraph}
2080   \expandafter\newcount\csname prevpage#1@num\endcsname
2081   \expandafter\let\csname #1footstart\endcsname=\parafootstart
2082   \expandafter\let\csname v#1footnote\endcsname=\para@vfootnote
2083   \expandafter\let\csname #1footfmt\endcsname=\parafootfmt
2084   \expandafter\let\csname #1footgroup\endcsname=\para@footgroup
2085   \count\csname #1footins\endcsname=1000
2086   \csxdef{default@#1footins}{1000}%Use this to confine the notes to one side only
2087   \dimen\csname #1footins\endcsname=\csuse{maxhXnotes@#1}
2088   \skip\csname #1footins\endcsname=\csuse{beforeXnotes@#1}%
2089   \advance\skip\csname #1footins\endcsname by\csuse{afterXrule@#1}%
2090   \para@footsetup{#1}

```

And the extra setup for minipages.

```

2091 \ifnoledgroup@else
2092   \expandafter\let\csname mpv#1footnote\endcsname=\mppara@vfootnote
2093   \expandafter\let\csname mp#1footgroup\endcsname=\mppara@footgroup
2094   \count\csname mp#1footins\endcsname=1000
2095   \dimen\csname mp#1footins\endcsname=\csuse{maxhXnotes@#1}
2096   \skip\csname mp#1footins\endcsname=\csuse{beforeXnotes@#1}%
2097   \advance\skip\csname mp#1footins\endcsname by\csuse{afterXrule@#1}%
2098   \fi
2099 }

```

`\footfudgefiddle` For paragraphed footnotes  $\text{\TeX}$  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.

```

2100 \providecommand{\footfudgefiddle}{64}

```

`\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, in `\notefontsetup`. The argument of the macro is again the note series letter.

Peter Wilson thinks that `\columnwidth` should be used here for  $\text{\LaTeX}$  not `\hsize`. I've also included `\footfudgefiddle`.

```

2101 \newcommand*{\para@footsetup}[1]{\csuse{Xnotefontsize@#1}
2102   \setXnoteswidthliketwocolumns@{#1}%
2103   \dimen0=\baselineskip
2104   \multiply\dimen0 by 1024
2105   \divide \dimen0 by \columnwidth \multiply\dimen0 by \footfudgefiddle\relax
2106   \csxdef{#1footfudgefactor}{%
2107     \expandafter\strip@pt\dimen0 }}
2108

```

EDMAC defines `\en@number` which does the same as the  $\text{\LaTeX}$  kernel `\strip@pt`, namely strip the characters `pt` from a `dimen` value. Eledmac use `\strip@pt`.

`\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). You might have decided to change this for other kinds of note, but here it should stay as it is. The size of paragraped 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.

```

2109 \newcommand*{\parafootstart}[1]{%
2110   \rightskip=0pt \leftskip=0pt \parindent=0pt
2111   \ifdimequal{0pt}{\preXnotes@}{}%
2112     {%
2113       \iftoggle{preXnotes@}{%
2114         \togglefalse{preXnotes@}%
2115         \skip\curname #1footins\endcsname=%
2116         \dimexpr\csuse{preXnotes@}+\csuse{afterXrule@#1}\relax%
2117       }%
2118     }%
2119   }%
2120   \vskip\skip\curname #1footins\endcsname%
2121   \setXnoteswidthliketwocolumns@{#1}%
2122   \setXnotespositionliketwocolumns@{#1}%
2123   \print@Xfootnoterule{#1}%
2124   \noindent\leavevmode}

```

`\para@vfootnote` `\para@vfootnote` is a version of the `\vfootnote` command that's used for paragraped 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

<sup>29</sup>Michael Downes, 'Line Breaking in `\unboxed` Text', *TUGboat* 11 (1990), pp. 605–612.

<sup>30</sup>See *The TeXbook*, p. 455 (editions after January 1990).

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 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's 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 `\unvxh`: 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 say `\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 don't make the break mandatory. We haven't applied any of Michael's solutions here, since we feel that the problem is exiguous, and `eledmac` 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. 25.3 p. 130 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.

```

2125 \newcommand*{\para@vfootnote}[2]{%
2126   \insert\csname #1footins\endcsname
2127   \bgroup
2128     \csuse{bhookXnote@#1}
2129     \csuse{Xnotefontsize@#1}
2130     \footplitskips
2131     \setbox0=\vbox{\hsize=\maxdimen
2132       \noindent\csname #1footfmt\endcsname#2[#1]}%
2133     \setbox0=\hbox{\unvxh0[#1]}%
2134     \dp0=0pt
2135     \ht0=\csname #1footfudgefactor\endcsname\wd0

```

Here we produce the contents of the footnote from box 0, and add a penalty of 0 between boxes in this insert.

```

2136   \if@RTL\noindent \leavevmode\fi\box0%
2137   \penalty0
2138 \egroup}
2139

```

---

<sup>31</sup>Wayne supplied his own macros to do this, but since they were almost identical to Michael's, we have used the latter's `\unvxh` 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  $\text{\TeX}$  attempts to split foot paragraphs. After trying out such a split (see *The TeXbook*, p.124),  $\text{\TeX}$  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 doesn’t 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`).

`\mppara@vfootnote` This version is for minipages.

```

2140 \newcommand*{\mppara@vfootnote}[2]{%
2141   \global\setbox\@nameuse{mp#1footins}\vbox{%
2142     \unvbox\@nameuse{mp#1footins}%
2143     \csuse{bhookXnote@#1}%
2144     \csuse{Xnotefontsize@#1}%
2145     \footssplitsskips
2146     \setbox0=\vbox{\hsize=\maxdimen
2147       \noindent\color@begingroup\csname #1footfmt\endcsname #2[#1]\color@endgroup}%
2148     \setbox0=\hbox{\unvxh0[#1]}%
2149     \dp0=\z@
2150     \ht0=\csname #1footfudgefactor\endcsname\wd0
2151     \box0
2152     \penalty0
2153 }}
2154
```

`\unvxh` Here is (modified) Michael’s definition of `\unvxh`, used above. Michael’s macro also takes care to remove some unwanted penalties and glue that  $\text{\TeX}$  automatically attaches to the end of paragraphs. When  $\text{\TeX}$  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`.

```

2155 \newcommand*{\unvxh}[2][2=Z]{% 2th is optional for retro-compatibility
2156   \setbox0=\vbox{\unvbox#1%
2157     \global\setbox1=\lastbox}%
2158   \unhbox1
2159   \unskip           % remove \rightskip,
2160   \unskip           % remove \parfillskip,
2161   \unpenalty        % remove \penalty of 10000,
2162   \hskip\csuse{afternote@#2}} % but add the glue to go between the notes
2163
```

`\parafootfmt` `\parafootfmt` is `\normalfootfmt` adapted to do the special stuff needed for paraphed 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).

```

2164 \newcommand*{\parafootfmt}[4][4=Z]{%
2165   \insertparafootsep{#4}%
2166   \Xledsetnormalparstuff{#4}%
2167   \printlinefootnote{#1}{#4}%
2168   {\nottoggle{Xlemmadisablefontselection@#4}{\select@lemmafont#1|#2}{#2}}%
2169   \iftoggle{nosep@}{\hskip\csuse{inplaceoflemmaseparator@#4}}{\ifcempty{lemmaseparator@#4}
2170     {\hskip\csuse{inplaceoflemmaseparator@#4}}%
2171     {\nobreak\hskip\csuse{beforelemmaseparator@#4}\csuse{lemmaseparator@#4}\hskip\csuse{aft
2172     }}}%
2173   #3\penalty-10 }

```

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 `\insertparafootsep` command is used to insert the `\parafootsep@series` between each note in the *same* page.

`\para@footgroup` 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 `\notefontsetup` is to ensure that the correct `\baselineskip` for the footnotes is used. The argument is the note series letter.

```

2174 \newcommand*{\para@footgroup}[1]{%
2175   \unvbox\csname #1footins\endcsname
2176   \ifcsstring{Xragged@#1}{L}{\RaggedLeft}{}%
2177   \ifcsstring{Xragged@#1}{R}{\RaggedRight}{}%
2178   \makehboxofhboxes
2179   \setbox0=\hbox{\csuse{Xnotefontsize@#1}\csuse{txtbeforeXnotes@#1}}\unhbox0 \removehboxes
2180   \csuse{Xnotefontsize@#1}
2181   \noindent\unhbox0\par%
2182   \global\hsize=\old@hsize%
2183   }%
2184

```

`\mppara@footgroup` The minipage version.

```

2185 \newcommand*{\mppara@footgroup}[1]{%
2186   \setXnoteswidthliketwocolumns@{#1}%
2187   \vskip\skip\@nameuse{mp#1footins}
2188   \ifl@dpairing\ifparledgroup%
2189     \leavevmode\marks\parledgroup@{begin}%
2190     \marks\parledgroup@series{#1}%
2191     \marks\parledgroup@type{Xfootnote}%
2192   \fi\fi\normalcolor
2193   \ifparledgroup%
2194     \ifl@dpairing%
2195     \else%
2196       \setXnoteswidthliketwocolumns@{#1}%
2197       \setXnotespositionliketwocolumns@{#1}%

```

```

2198     \print@Xfootnoterule{#1}%
2199     \fi%
2200   \else%
2201     \setXnoteswidthliketwocolumns@{#1}%
2202     \setXnotespositionliketwocolumns@{#1}%
2203     \print@Xfootnoterule{#1}%
2204   \fi%
2205   \unvbox\csname mp#1footins\endcsname
2206   \ifcsstring{Xragged@#1}{L}{\RaggedLeft}{}%
2207   \ifcsstring{Xragged@#1}{R}{\RaggedRight}{}%
2208   \makehboxofhboxes
2209   \setbox0=\hbox{\csuse{Xnotefontsize@#1}\csuse{txtbeforeXnotes@#1}\unhbox0 \removehboxes}%
2210   \csuse{Xnotefontsize@#1}
2211   \noindent\unhbox0\par}}
2212

```

\makehboxofhboxes

```

\removehboxes 2213 \newcommand*\makehboxofhboxes{\setbox0=\hbox{}%
2214   \loop
2215     \unpenalty
2216     \setbox2=\lastbox
2217     \ifhbox2
2218       \setbox0=\hbox{\box2\unhbox0}%
2219     \repeat}
2220
2221 \newcommand*\removehboxes{\setbox0=\lastbox
2222   \ifhbox0{\removehboxes}\unhbox0 \fi}
2223

```

### 25.5.1 Insertion of the footnotes separator

The command `\insertparafootsep{<series>}` must be called at the beginning of `\parafootftm` (and like commands).

\prevpage@num

```

\insertparafootsep 2224 \newcommand{\insertparafootsep}[1]{%
2225   \ifnumequal{\csuse{prevpage#1@num}}{\page@num}%
2226     {\ifcsdef{prevline#1}% Be sur \prevline#1 exists.
2227       {\ifnumequal{\csuse{prevline#1}}{\line@num}%
2228         {\IfStrEq{\csuse{symlinenum@#1}}{\csuse{parafootsep@#1}}{}}%
2229         {\csuse{parafootsep@#1}}%
2230       }%
2231     {\csuse{parafootsep@#1}}%
2232   }%
2233   {}%
2234   \global\csname prevpage#1@num\endcsname=\page@num%
2235 }

```

## 25.6 Columnar footnotes

`\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 don't 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 L<sup>A</sup>T<sub>E</sub>X `\line` macro has no relationship to the TeX `\line`. The L<sup>A</sup>T<sub>E</sub>X equivalent is `\@@line`.

```

2236 \newcount\@k \newdimen\@h
2237 \newcommand*\rigidbalance}[3]{\setbox0=\box#1 \@k=#2 \@h=#3
2238 \@@line{\splittopskip=\@h \vbadness=\@M \hfilneg
2239 \valign{##\vfil\cr\dosplits}}}}
2240
2241 \newcommand*\dosplits{\ifnum\@k>0 \noalign{\hfil}\splitoff
2242 \global\advance\@k-1\cr\dosplits\fi}
2243
2244 \newcommand*\splitoff{\dimen0=\ht0
2245 \divide\dimen0 by\@k \advance\dimen0 by\@h
2246 \setbox2 \vsplit0 to \dimen0
2247 \unvbox2 }
2248

```

### 25.6.1 Three columns

`\footthreecol` You say `\footthreecol{A}` to have the A series of the footnotes typeset in three columns. It is important to call this only after `\hsize` has been set for the document.

```

2249 \newcommand*\footthreecol}[1]{%
2250 \csgdef{series@display#1}{threecol}
2251 \expandafter\let\csname v#1footnote\endcsname=\threecolvfootnote
2252 \expandafter\let\csname #1footfmt\endcsname=\threecolfootfmt
2253 \expandafter\let\csname #1footgroup\endcsname=\threecolfootgroup
2254 \dimen\csname #1footins\endcsname=\csuse{maxhXnotes@#1}%
2255 \skip\csname #1footins\endcsname=\csuse{beforeXnotes@#1}%
2256 \advance\skip\csname #1footins\endcsname by\csuse{afterXrule@#1}%
2257 \threecolfootsetup{#1}

```

The additional setup for minipages.

```

2258 \ifnoledgroup\else
2259 \expandafter\let\csname mpv#1footnote\endcsname=\mpnormalvfootnote
2260 \expandafter\let\csname mp#1footgroup\endcsname=\mpthreecolfootgroup
2261 \skip\csname mp#1footins\endcsname=\csuse{beforeXnotes@#1}%
2262 \advance\skip\csname mp#1footins\endcsname by\csuse{afterXrule@#1}%
2263 \mpthreecolfootsetup{#1}
2264 \fi
2265 }

```

2266

The `\footstart` and `\footnoterule` macros for these notes assume the normal values (25.3 p. 130 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 T<sub>E</sub>X is accumulating material for the page and checking that limit, it doesn't apply the `\count` scaling.

```
2267 \newcommand*{\threecolfootsetup}[1]{%
2268   \count\csname #1footins\endcsname 333
2269   \csxdef{default@#1footins}{333}%Use this to confine the notes to one side only
2270   \multiply\dimen\csname #1footins\endcsname \thr@@}
```

`\mpthreecolfootsetup` The setup for minipages.

```
2271 \newcommand*{\mpthreecolfootsetup}[1]{%
2272   \count\csname mp#1footins\endcsname 333
2273   \multiply\dimen\csname mp#1footins\endcsname \thr@@}
2274
```

`\threecolvfootnote` `\threecolvfootnote` is the `\vfootnote` command for three-column notes. The call to `\notefontsetup` 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 2) the full text of the note (including numbers, lemma and text).

```
2275 \notbool{parapparus@}{\newcommand*}{\newcommand}{\threecolvfootnote}[2]{%
2276   \insert\csname #1footins\endcsname\bgroup
2277   \csuse{Xnotefontsize@#1}
2278   \footsplittskips
2279   \csname #1footfmt\endcsname #2[#1]\egroup}
```

`\threecolfootfmt` `\threecolfootfmt` is the command that formats one note. It uses `\raggedright`, which will usually be preferable with such short lines. Setting the `\parindent` to zero means that, within each individual note, the lines begin flush left.

The arguments are 1) the line numbers, 2) the lemma and 3) the text of the `-footnote` command 4) optional (for backward compatibility): the series.

```

2280 \notbool{parapparatus@}{\newcommandx*{\newcommandx}{\threecolfootfmt}[4][4=Z]{%
2281   \normal@pars
2282   \hsize \csuse{hsizehthreecol@#4}
2283   \nottoggle{Xparindent@#4}{\parindent=\z@}{%
2284     \tolerance=5000
2285     \hangindent=\csuse{Xhangindent@#4}
2286     \leavevmode
2287     \csuse{Xcolalign@#4}%
2288     \strut{\printlinefootnote{#1}{#4}}}%
2289   {\nottoggle{Xlemmadisablefontselection@#4}{\select@lemmafont#1|#2}{#2}}}%
2290 \iftoggle{nosep@}{\hskip\csuse{inplaceoflemmaseparator@#4}}{\ifcempty{lemmaseparator@#4}
2291   {\hskip\csuse{inplaceoflemmaseparator@#4}}}%
2292   {\nobreak\hskip\csuse{beforelemmaseparator@#4}\csuse{lemmaseparator@#4}\hskip\csuse{aft
2293   }}%
2294   #3\strut\par\allowbreak}

```

`\threecolfootgroup` And here is the `footgroup` macro that's called within the output routine to re-group the notes into three columns. Once again, the call to `\notefontsetup` 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.

```

2295 \newcommand*{\threecolfootgroup}[1]{\csuse{Xnotefontsize@#1}%
2296   \noindent\csuse{txtbeforeXnotes@#1}\par%
2297   \splittopskip=\ht\strutbox
2298   \expandafter
2299   \rigidbalance\csname #1footins\endcsname \thr@@ \splittopskip}}

```

`\mpthreecolfootgroup` The setup for minipages.

```

2300 \newcommand*{\mpthreecolfootgroup}[1]{%
2301   \vskip\skip\@nameuse{mp#1footins}
2302   \ifl@dpairing\ifparledgroup%
2303     \leavevmode\marks\parledgroup@{begin}%
2304     \marks\parledgroup@series{#1}%
2305     \marks\parledgroup@type{Xfootnote}%
2306   \fi\fi\normalcolor
2307   \ifparledgroup%
2308     \ifl@dpairing%
2309     \else%
2310       \setXnoteswidthliketwocolumns@{#1}%
2311       \setXnotespositionliketwocolumns@{#1}%
2312       \print@Xfootnoterule{#1}%

```

```

2313 \fi%
2314 \else%
2315 \setXnoteswidthliketwocolumns@{#1}%
2316 \setXnotespositionliketwocolumns@{#1}%
2317 \print@Xfootnoterule{#1}%
2318 \fi%
2319 {\csuse{Xnotefontsize@#1}\noindent\csuse{txtbeforeXnotes@#1}}\par
2320 \splittopskip=\ht\strutbox
2321 \expandafter
2322 \rigidbalance\csname mp#1footins\endcsname \thr@@ \splittopskip}}
2323

```

### 25.6.2 Two columns

`\foottwocol` You say `\foottwocol{A}` to have the A series of the footnotes typeset in two columns. It is important to call this only after `\hsize` has been set for the document.

```

2324 \newcommand*{\foottwocol}[1]{%
2325 \csgdef{series@display#1}{twocol}
2326 \expandafter\let\csname v#1footnote\endcsname=\twocolvfootnote
2327 \expandafter\let\csname #1footfmt\endcsname=\twocolfootfmt
2328 \expandafter\let\csname #1footgroup\endcsname=\twocolfootgroup
2329 \dimen\csname #1footins\endcsname=\csuse{maxhXnotes@#1}%
2330 \skip\csname #1footins\endcsname=\csuse{beforeXnotes@#1}%
2331 \advance\skip\csname #1footins\endcsname by\csuse{afterXrule@#1}%
2332 \twocolfootsetup{#1}

```

The additional setup for minipages.

```

2333 \ifnoledgroup@ \else
2334 \expandafter\let\csname mpv#1footnote\endcsname=\mpnormalvfootnote
2335 \expandafter\let\csname mp#1footgroup\endcsname=\mptwocolfootgroup
2336 \skip\csname mp#1footins\endcsname=\csuse{beforeXnotes@#1}%
2337 \advance\skip\csname mp#1footins\endcsname by\csuse{afterXrule@#1}%
2338 \mptwocolfootsetup{#1}
2339 \fi
2340 }
2341

```

`\twocolfootsetup` Here is a series of macros which are very similar to their three-column counterparts.

`\twocolvfootnote` In this case, each note is assumed to contribute only a half a line of text. And the

`\twocolfootfmt` notes are set in columns giving a gap between them of one tenth of the `\hsize`.

`\twocolfootgroup` 2342 \newcommand\*{\twocolfootsetup}[1]{%

```

2343 \count\csname #1footins\endcsname 500

```

```

2344 \csxdef{default@#1footins}{500}%Use this to confine the notes to one side only

```

```

2345 \multiply\dimen\csname #1footins\endcsname \tw@}

```

```

2346 \notbool{parapparatus@}{\newcommand*{\newcommand}{\twocolvfootnote}[2]{\insert\csname #1footins\endc

```

```

2347 \csuse{Xnotefontsize@#1}

```

```

2348 \footsplitskips

```

```

2349 \csname #1footfmt\endcsname #2[#1]\egroup}

```

```

2350 \notbool{parapparatus@}{\newcommandx*}{\newcommandx}{\twocolfootfmt}[4][4=Z]{% 4th arg is o
2351 \normal@pars
2352 \hsize \csuse{hsizetwocol@#4}
2353 \nottoggle{Xparindent@#4}{\parindent=\z@}{%
2354 \tolerance=5000
2355 \hangindent=\csuse{Xhangindent@#4}
2356 \leavevmode
2357 \csuse{Xcolalign@#4}%
2358 \strut{\printlinefootnote{#1}{#4}}%
2359 {\nottoggle{Xlemmadisablefontselection@#4}{\select@lemmafont#1|#2}{#2}}%
2360 \iftoggle{nosep@}{\hskip\csuse{inplaceoflemmaseparator@#4}}{\ifcsemt{lemmaseparator@#4}
2361 {\hskip\csuse{inplaceoflemmaseparator@#4}}}%
2362 {\nobreak\hskip\csuse{beforelemmaseparator@#4}\csuse{lemmaseparator@#4}\hskip\csuse{aft
2363 }}%
2364 #3\strut\par\allowbreak}

2365 \newcommand*{\twocolfootgroup}[1]{\csuse{Xnotefontsize@#1}
2366 \noindent\csuse{txtbeforeXnotes@#1}\par%
2367 \splittopskip=\ht\strutbox
2368 \expandafter
2369 \rigidbalance\csname #1footins\endcsname \tw@ \splittopskip}}
2370

```

`\mptwocolfootsetup` The versions for minipages.

```

\mptwocolfootgroup 2371 \newcommand*{\mptwocolfootsetup}[1]{%
2372 \count\csname mp#1footins\endcsname 500
2373 \multiply\dimen\csname mp#1footins\endcsname \tw@}

2374 \newcommand*{\mptwocolfootgroup}[1]{%
2375 \vskip\skip\@nameuse{mp#1footins}
2376 \ifl@dpairing\ifparledgroup%
2377 \leavevmode\marks\parledgroup@{begin}%
2378 \marks\parledgroup@series{#1}%
2379 \marks\parledgroup@type{Xfootnote}%
2380 \fi\fi\normalcolor
2381 \ifparledgroup%
2382 \ifl@dpairing%
2383 \else%
2384 \setXnoteswidthliketwocolumns@{#1}%
2385 \setXnotespositionliketwocolumns@{#1}%
2386 \print@Xfootnoterule{#1}%
2387 \fi%
2388 \else%
2389 \setXnoteswidthliketwocolumns@{#1}%
2390 \setXnotespositionliketwocolumns@{#1}%
2391 \print@Xfootnoterule{#1}%
2392 \fi%
2393 {\csuse{Xnotefontsize@#1}\noindent\csuse{txtbeforeXnotes@#1}}\par
2394 \splittopskip=\ht\strutbox
2395 \expandafter
2396 \rigidbalance\csname mp#1footins\endcsname \tw@ \splittopskip}}

```



2397

## 26 Familiar footnotes

### 26.1 Generality

The original EDMAC provided users with five series of critical footnotes (`\Afootnote` `\Bfootnote` `\Cfootnote` `\Dfootnote` `\Efootnote`), and L<sup>A</sup>T<sub>E</sub>X provides a single numbered footnote. The `eledmac` 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 seems such a useful ability that it is provided automatically by `eledmac`.

`\multiplefootnotemarker` These macros may have been defined by the `memoir` class, are provided by the `footmisc` package and perhaps by other footnote packages.

```

2398 \providecommand*\multiplefootnotemarker{3sp}
2399 \providecommand*\multfootsep{\textsuperscript{\normalfont,}}
2400
```

`\m@mmf@prepare` A pair of self-cancelling kerns. This may have been defined in the `memoir` class.

```

2401 \providecommand*\m@mmf@prepare{%
2402   \kern-\multiplefootnotemarker
2403   \kern\multiplefootnotemarker\relax}

```

`\m@mmf@check` This may have been defined in the `memoir` class. If it recognises the last kern as `\multiplefootnotemarker` it typesets `\multfootsep`.

```

2404 \providecommand*\m@mmf@check{%
2405   \ifdim\lastkern=\multiplefootnotemarker\relax
2406     \edef\x@sf{\the\spacefactor}%
2407     \unkern
2408     \multfootsep
2409     \spacefactor\x@sf\relax
2410   \fi}
2411
```

We have to modify `\@footnotetext` and `\@footnotemark`. However, if `memoir` is used the modifications have already been made.

```

2412 \@ifclassloaded{memoir}{-}{%

```

`\@footnotetext` Add `\m@mmf@prepare` at the end of `\@footnotetext`.

```

2413 \apptocmd{\@footnotetext}{\m@mmf@prepare}{-}{-}

```

`\@footnotemark` Modify `\@footnotemark` to cater for adjacent `\footnotes`.

```

2414 \renewcommand*\@footnotemark{%
2415   \leavevmode
2416   \ifhmode

```

```

2417 \edef\@x@sf{\the\spacefactor}%
2418 \m@mmf@check
2419 \nobreak
2420 \fi
2421 \@makefnmark
2422 \m@mmf@prepare
2423 \ifhmode\spacefactor\@x@sf\fi
2424 \relax}

```

Finished the modifications for the non-memoir case.

```

2425 }
2426

```

`\l@doldold@footnotetext` In order to enable the regular `\footnotes` in numbered text we have to play around with its `\@footnotetext`, using different forms for when in numbered or regular text.

```

2427 \pretocmd{\@footnotetext}{%
2428 \ifnumberedpar@
2429 \edtext{}{\l@dbfnote{#1}}}%
2430 \else
2431 }{}{}
2432 \apptocmd{\@footnotetext}{\fi}{}{}%

```

`\l@dbfnote` `\l@dbfnote` adds the footnote to the insert list, and `\vl@dbfnote` calls the original `\vl@dbfnote` `\@footnotetext`.

```

2433 \newcommand{\l@dbfnote}[1]{%
2434 \ifnumberedpar@
2435 \gdef\@tag{#1\relax}%
2436 \xright@appenditem{\noexpand\vl@dbfnote{\expandonce\@tag}}{\@thefnmark}}%
2437 \to\inserts@list
2438 \global\advance\insert@count \@ne
2439 \fi\ignorespaces}
2440 \newcommand{\vl@dbfnote}[2]{%
2441 \def\@thefnmark{#2}%
2442 \@footnotetext{#1}%
2443 }%

```

## 26.2 Footnote formats

Some of the code for the various formats is remarkably similar to that in section 25.3.

The following macros generally set things up for the ‘standard’ footnote format.

`\prebodyfootmark` Two convenience macros for use by `\...@footnotemark...` macros.

```

\postbodyfootmark 2444 \newcommand*{\prebodyfootmark}{%
2445 \leavevmode
2446 \ifhmode
2447 \edef\@x@sf{\the\spacefactor}%
2448 \m@mmf@check

```

```

2449 \nobreak
2450 \fi}
2451 \newcommand{\postbodyfootmark}{%
2452 \m@mmf@prepare
2453 \ifhmode\spacefactor\@xsf\fi\relax}
2454

```

`\normal@footnotemarkX` `\normal@footnotemarkX{<series>}` sets up the typesetting of the marker at the point where the footnote is called for.

```

2455 \newcommand*{\normal@footnotemarkX}[1]{%
2456 \prebodyfootmark
2457 \@nameuse{bodyfootmark#1}%
2458 \postbodyfootmark}
2459

```

`\normalbodyfootmarkX` The `\normalbodyfootmarkX{<series>}` really typesets the in-text marker. The style is the normal superscript.

```

2460 \newcommand*{\normalbodyfootmarkX}[1]{%
2461 \hbox{\textsuperscript{\normalfont\@nameuse{@thefnmark#1}}}}

```

`\normalvfootnoteX` `\normalvfootnoteX{<series>}{<text>}` does the `\insert` for the `<series>` and calls the series' `\footfmt...` to format the `<text>`.

```

2462 \notbool{parapparatus@}{\newcommand*}{\newcommand}{\normalvfootnoteX}[2]{%
2463 \insert\@nameuse{footins#1}\bgroup
2464 \csuse{bhooknoteX@#1}
2465 \csuse{notefontsizeX@#1}
2466 \footplitskips
2467 \ifl@dpairing\ifl@dpaging\else%
2468 \setnotesXwidthliketwocolumns@{#1}%
2469 \fi\fi%
2470 \setnotesXpositionliketwocolumns@{#1}%
2471 \spaceskip=\z@skip \xspaceskip=\z@skip
2472 \csuse{\csuse{footnote@dir}}\@nameuse{footfmt#1}{#1}{#2}\egroup}
2473

```

`\mpnormalvfootnoteX` The minipage version.

```

2474 \newcommand*{\mpnormalvfootnoteX}[2]{%
2475 \global\setbox\@nameuse{mpfootins#1}\vbox{%
2476 \unvbox\@nameuse{mpfootins#1}
2477 \csuse{bhooknoteX@#1}
2478 \csuse{notefontsizeX@#1}
2479 \hsize\columnwidth
2480 \@parboxrestore
2481 \color@begingroup
2482 \@nameuse{footfmt#1}{#1}{#2}\color@endgroup}}
2483

```

`\normalfootfmtX` `\normalfootfmtX{<series>}{<text>}` typesets the footnote text, prepended by the marker.

```

2484 \notbool{parapparatus@}{\newcommand*}{\newcommand}{\normalfootfmtX}[2]{%
2485 \ifluatex%
2486     \luatextextdir\footnote@luatextextdir%
2487     \luatexpardir\footnote@luatexpardir%
2488     \par%
2489 \fi%
2490 \protected@edef\@currentlabel{%
2491     \@nameuse{@thefnmark#1}%
2492 }%
2493 \ledsetnormalparstuffX{#1}%
2494 \hangindent=\csuse{hangindentX@#1}%
2495 {\csuse{notenumfontX@#1}\@nameuse{footfootmark#1}}\strut%
2496 #2\strut\par}}
2497

```

`\normalfootfootmarkX` `\normalfootfootmarkX{<series>}` is called by `\normalfootfmtX` to typeset the footnote marker in the footer before the footnote text.

```

2498 \newcommand*{\normalfootfootmarkX}[1]{%
2499     \textsuperscript{\@nameuse{@thefnmark#1}}}
2500

```

`\normalfootstartX` `\normalfootstartX{<series>}` is the `<series>` footnote starting macro used in the output routine.

```

2501 \newcommand*{\normalfootstartX}[1]{%
2502     \ifdimequal{0pt}{\prenotesX@}{}%
2503     {%
2504         \iftoggle{prenotesX@}{%
2505             \togglefalse{prenotesX@}%
2506             \skip\csname footins#1\endcsname=%
2507             \dimexpr\csuse{prenotesX@}+\csuse{afterruleX@#1}\relax%
2508         }%
2509         {}%
2510     }%
2511     \vskip\skip\csname footins#1\endcsname%
2512     \leftskip=\z@
2513     \rightskip=\z@
2514     \ifl@dpairing\else%
2515         \hsize=\old@hsize%
2516     \fi%
2517     \setnotesXwidthliketwocolumns@{#1}%
2518     \setnotesXpositionliketwocolumns@{#1}%
2519     \print@footnoteXrule{#1}%
2520 }%
2521

```

`\normalfootnoteruleX` The rule drawn before the footnote series group.

```

2522 \let\normalfootnoteruleX=\footnoterule
2523

```

`\normalfootgroupX` `\normalfootgroupX{<series>}` sends the contents of the `<series>` insert box to the output page without alteration.

```
2524 \newcommand*{\normalfootgroupX}[1]{%
2525   \unvbox\@nameuse{footins#1}%
2526   \hsize=\old@hsize%
2527 }%
2528
```

`\mpnormalfootgroupX` The minipage version.

```
2529 \newcommand*{\mpnormalfootgroupX}[1]{%
2530   \vskip\skip\@nameuse{mpfootins#1}
2531   \ifl@dpairing\ifparledgroup%
2532     \leavevmode\marks\parledgroup@{begin}%
2533     \marks\parledgroup@series{#1}%
2534     \marks\parledgroup@type{footnoteX}%
2535   \fi\fi\normalcolor
2536   \ifparledgroup%
2537     \ifl@dpairing%
2538     \else%
2539       \setnotesXwidthliketwocolumns@{#1}%
2540       \setnotesXpositionliketwocolumns@{#1}%
2541       \print@footnoteXrule{#1}%
2542     \fi%
2543   \else%
2544     \setnotesXwidthliketwocolumns@{#1}%
2545     \setnotesXpositionliketwocolumns@{#1}%
2546     \print@footnoteXrule{#1}%
2547   \fi%
2548   \unvbox\@nameuse{mpfootins#1}}
2549
```

`\normalbfnoteX`

```
2550 \newcommand{\normalbfnoteX}[2]{%
2551   \ifnumberedpar@
2552     \protected@xdef\thisfootnote{\csuse{thefootnote#1}}%
2553     \xright@appenditem{\noexpand\vbfnoteX{#1}{#2}}{\expandonce\thisfootnote}}%
2554     \to\inserts@list
2555     \global\advance\insert@count \@ne
2556   \fi\ignorespaces}
2557
```

`\vbfnoteX`

```
2558 \newcommand{\vbfnoteX}[3]{%
2559   \@namedef{thefnmark#1}{#3}%
2560   \@nameuse{regvfootnote#1}{#1}{#2}}
2561
```

`\vnumfootnoteX`

```
2562 \newcommand{\vnumfootnoteX}[2]{%
```

```

2563 \ifnumberedpar@
2564   \edtext{}{\normalbfnoteX{#1}{#2}}%
2565 \else
2566   \@nameuse{regvfootnote#1}{#1}{#2}%
2567 \fi}
2568

```

`\footnormalX` `\footnormalX{<series>}` initialises the settings for the `<series>` footnotes. This should always be called for each series.

```

2569 \newcommand*{\footnormalX}[1]{%
2570   \csgdef{series@displayX#1}{normalX}
2571   \expandafter\let\csname footstart#1\endcsname=\normalfootstartX
2572   \@namedef{@footnotemark#1}{\normal@footnotemarkX{#1}}
2573   \@namedef{bodyfootmark#1}{\normalbodyfootmarkX{#1}}
2574   \expandafter\let\csname regvfootnote#1\endcsname=\normalvfootnoteX
2575   \expandafter\let\csname vfootnote#1\endcsname=\vnumfootnoteX
2576   \expandafter\let\csname footfmt#1\endcsname=\normalfootfmtX
2577   \@namedef{footfootmark#1}{\normalfootfootmarkX{#1}}
2578   \expandafter\let\csname footgroup#1\endcsname=\normalfootgroupX
2579   \expandafter\let\csname footnoterule#1\endcsname=\normalfootnoteruleX
2580   \count\csname footins#1\endcsname=1000
2581   \csxdef{default@footins#1}{1000}%Use to have note only for one side
2582   \dimen\csname footins#1\endcsname=\csuse{maxhnotesX@#1}
2583   \skip\csname footins#1\endcsname=\csuse{beforenotesX@#1}%
2584   \advance\skip\csname footins#1\endcsname by\csuse{afterruleX@#1}%

```

Additions for minipages.

```

2585 \ifnoledgroup@{\else%
2586   \expandafter\let\csname mpvfootnote#1\endcsname=\mpnormalvfootnoteX
2587   \expandafter\let\csname mpfootgroup#1\endcsname=\mpnormalfootgroupX
2588   \count\csname mpfootins#1\endcsname=1000
2589   \dimen\csname mpfootins#1\endcsname=\csuse{maxhnotesX@#1}
2590   \skip\csname mpfootins#1\endcsname=\csuse{beforenotesX@#1}%
2591   \advance\skip\csname mpfootins#1\endcsname by\csuse{afterruleX@#1}%
2592 \fi
2593 }
2594

```

## 26.3 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.

```

\foottwocolX \foottwocolX{<series>}
2595 \newcommand*{\foottwocolX}[1]{%
2596   \csgdef{series@displayX#1}{twocolX}
2597   \expandafter\let\csname regvfootnote#1\endcsname=\twocolvfootnoteX
2598   \expandafter\let\csname footfmt#1\endcsname=\twocolfootfmtX
2599   \expandafter\let\csname footgroup#1\endcsname=\twocolfootgroupX
2600   \dimen\csname footins#1\endcsname=\csuse{maxhnotesX@#1}%

```

```

2601 \skip\csname footins#1\endcsname=\csuse{beforenotesX@#1}%
2602 \advance\skip\csname footins#1\endcsname by \csuse{afterruleX@#1}\relax%
2603 \twocolfootsetupX{#1}
2604 \ifnoledgroup@ \else%
2605   \expandafter\let\csname mpvfootnote#1\endcsname=\mpnormalvfootnoteX
2606   \expandafter\let\csname mpfootgroup#1\endcsname=\mptwocolfootgroupX
2607   \skip\csname mpfootins#1\endcsname=\csuse{beforenotesX@#1}%
2608   \advance\skip\csname mpfootins#1\endcsname by \csuse{afterruleX@#1}
2609   \mptwocolfootsetupX{#1}
2610 \fi%
2611 }
2612

```

```

\twocolfootsetupX \twocolfootsetupX{<series>}
\mptwocolfootsetupX 2613 \newcommand*{\twocolfootsetupX}[1]{%
2614   \count\csname footins#1\endcsname 500
2615   \csxdef{default@footins#1}{500}%Use this to confine the notes to one side only
2616   \multiply\dimen\csname footins#1\endcsname by \tw@}
2617 \newcommand*{\mptwocolfootsetupX}[1]{%
2618   \count\csname mpfootins#1\endcsname 500
2619   \multiply\dimen\csname mpfootins#1\endcsname by \tw@}
2620

```

```

\twocolvfootnoteX \twocolvfootnoteX{<series>}
2621 \notbool{parapparatus@}{\newcommand*}{\newcommand}{\twocolvfootnoteX}[2]{%
2622   \insert\csname footins#1\endcsname\bgroup
2623   \csuse{notefontsizeX@#1}
2624   \footplitskips
2625   \spaceskip=\z@skip \xspaceskip=\z@skip
2626   \@nameuse{footfmt#1}{#1}{#2}\egroup}
2627

```

```

\twocolfootfmtX \twocolfootfmtX{<series>}
2628 \notbool{parapparatus@}{\newcommand*}{\newcommand}{\twocolfootfmtX}[2]{%
2629   \protected@edef\@currentlabel{%
2630     \@nameuse{thefnmark#1}%
2631   }%
2632   \normal@pars
2633   \hangindent=\csuse{hangindentX@#1}%
2634   \hsize \csuse{hsizetwocolX@#1}
2635   \nottoggle{parindentX@#1}{\parindent=\z@}{%
2636     \tolerance=5000\relax
2637     \leavevmode
2638     \csuse{colalignX@#1}%
2639     {\csuse{notenumfontX@#1}\@nameuse{footfootmark#1}\strut%
2640       #2\strut\par}\allowbreak}
2641

```

```

\twocolfootgroupX \twocolfootgroupX{<series>}
\mptwocolfootgroupX

```

```

2642 \newcommand*{\twocolfootgroupX}[1]{\csuse{notefontsizeX@#1}
2643   \splittopskip=\ht\strutbox
2644   \expandafter
2645   \rigidbalance\csname footins#1\endcsname \tw@ \splittopskip}}
2646 \newcommand*{\mptwocolfootgroupX}[1]{\%
2647   \vskip\skip\@nameuse{mpfootins#1}
2648   \ifl@dpairing\ifparledgroup%
2649     \leavevmode\marks\parledgroup@{begin}%
2650     \marks\parledgroup@series{#1}%
2651     \marks\parledgroup@type{footnoteX}%
2652   \fi\fi\normalcolor
2653   \ifparledgroup%
2654     \ifl@dpairing%
2655     \else%
2656       \setnotesXwidthliketwocolumns@{#1}%
2657       \setnotesXpositionliketwocolumns@{#1}%
2658       \print@footnoteXrule{#1}%
2659     \fi%
2660   \else%
2661     \setnotesXwidthliketwocolumns@{#1}%
2662     \setnotesXpositionliketwocolumns@{#1}%
2663     \print@footnoteXrule{#1}%
2664   \fi%
2665   \splittopskip=\ht\strutbox
2666   \expandafter
2667   \rigidbalance\csname mpfootins#1\endcsname \tw@ \splittopskip}}
2668

```

## 26.4 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.

```

\footthreecolX \footthreecolX{<series>}
2669 \newcommand*{\footthreecolX}[1]{\%
2670   \csgdef{series@displayX#1}{threecolX}
2671   \expandafter\let\csname regvfootnote#1\endcsname=\threecolvfootnoteX
2672   \expandafter\let\csname footfmt#1\endcsname=\threecolfootfmtX
2673   \expandafter\let\csname footgroup#1\endcsname=\threecolfootgroupX
2674   \dimen\csname footins#1\endcsname=\csuse{maxhnotesX@#1}%
2675   \skip\csname footins#1\endcsname=\csuse{beforenotesX@#1}%
2676   \advance\skip\csname footins#1\endcsname by \csuse{afterruleX@#1}\relax%
2677   \threecolfootsetupX{#1}
2678   \ifnoledgroup@\else%
2679     \expandafter\let\csname mpvfootnote#1\endcsname=\mpnormalvfootnoteX
2680     \expandafter\let\csname mpfootgroup#1\endcsname=\mpthreecolfootgroupX
2681     \skip\csname mpfootins#1\endcsname=\csuse{beforenotesX@#1}%
2682     \advance\skip\csname mpfootins#1\endcsname by \csuse{afterruleX@#1}
2683     \mpthreecolfootsetupX{#1}

```



```

2684 \fi%
2685 }
2686

```

```

\threecolfootsetupX \threecolfootsetupX{<series>}
\mpthreecolfootsetupX 2687 \newcommand*{\threecolfootsetupX}[1]{%
2688 \count\csname footins#1\endcsname 333
2689 \csxdef{default@footins#1}{333}%Use this to confine the notes to one side only
2690 \multiply\dimen\csname footins#1\endcsname by \thr@@
2691 \newcommand*{\mpthreecolfootsetupX}[1]{%
2692 \count\csname mpfootins#1\endcsname 333
2693 \multiply\dimen\csname mpfootins#1\endcsname by \thr@@}
2694

```

```

\threecolvfootnoteX \threecolvfootnoteX{<series>}{<text>}
2695 \notbool{parapparatus@}{\newcommand*}{\newcommand}{\threecolvfootnoteX}[2]{%
2696 \insert\csname footins#1\endcsname\bgroup
2697 \cuse{notefontsizeX@#1}
2698 \footssplitsskip
2699 \@nameuse{footfmt#1}{#1}{#2}\egroup}
2700

```

```

\threecolfootfmtX \threecolfootfmtX{<series>}
2701 \notbool{parapparatus@}{\newcommand*}{\newcommand}{\threecolfootfmtX}[2]{%
2702 \protected@edef\@currentlabel{%
2703 \@nameuse{@thefnmark#1}%
2704 }%
2705 \hangindent=\cuse{hangindentX@#1}%
2706 \normal@pars
2707 \hsize \cuse{hsizethreecolX@#1}
2708 \nottoggle{parindentX@#1}{\parindent=\z@}{ } %
2709 \tolerance=5000\relax
2710 \leavevmode
2711 \cuse{colalignX@#1}%
2712 {\cuse{notenumfontX@#1}\@nameuse{footfootmark#1}\strut%
2713 #2\strut\par}\allowbreak}
2714

```

```

\threecolfootgroupX \threecolfootgroupX{<series>}
\mpthreecolfootgroupX 2715 \newcommand*{\threecolfootgroupX}[1]{\cuse{notefontsizeX@#1}
2716 \splittopskip=\ht\strutbox
2717 \expandafter
2718 \rigidbalance\csname footins#1\endcsname \thr@@ \splittopskip}}
2719 \newcommand*{\mpthreecolfootgroupX}[1]{%
2720 \vskip\skip\@nameuse{mpfootins#1}
2721 \ifl@dpairing\ifparledgroup
2722 \leavevmode\marks\parledgroup@{begin}%
2723 \marks\parledgroup@series{#1}%
2724 \marks\parledgroup@type{footnoteX}%

```

```

2725 \fi\fi\normalcolor
2726 \ifparledgroup%
2727   \ifl@dpairing%
2728   \else%
2729     \setnotesXwidthliketwocolumns@{#1}%
2730     \setnotesXpositionliketwocolumns@{#1}%
2731     \print@footnoteXrule{#1}%
2732   \fi%
2733 \else%
2734   \setnotesXwidthliketwocolumns@{#1}%
2735   \setnotesXpositionliketwocolumns@{#1}%
2736   \print@footnoteXrule{#1}%
2737 \fi%
2738 \splittopskip=\ht\strutbox
2739 \expandafter
2740 \rigidbalance\csname mpfootins#1\endcsname \thr@@ \splittopskip}}
2741

```

## 26.5 Paraphed footnotes

The following macros set footnotes as one paragraph.

```

\footparagraphX \footparagraphX{<series>}

2742 \newcommand*{\footparagraphX}[1]{%
2743   \csgdef{series@displayX#1}{paragraphX}%
2744   \expandafter\newcount\csname prevpage#1@num\endcsname
2745   \expandafter\let\csname footstart#1\endcsname=\parafootstartX
2746   \expandafter\let\csname regvfootnote#1\endcsname=\para@vfootnoteX
2747   \expandafter\let\csname footfmt#1\endcsname=\parafootfmtX
2748   \expandafter\let\csname footgroup#1\endcsname=\para@footgroupX
2749   \expandafter\let\csname footnoterule#1\endcsname=\normalfootnoteruleX
2750   \count\csname footins#1\endcsname=1000
2751   \csxdef{default@footins#1}{1000}%Use this to confine the notes to one side only
2752   \dimen\csname footins#1\endcsname=\csuse{maxhnotesX@#1}
2753   \skip\csname footins#1\endcsname=\csuse{beforenotesX@#1}%
2754   \advance\skip\csname footins#1\endcsname by\csuse{afterruleX@#1}%
2755   \para@footsetupX{#1}
2756   \ifnoledgroup@ \else
2757     \expandafter\let\csname mpvfootnote#1\endcsname=\mppara@vfootnoteX
2758     \expandafter\let\csname mpfootgroup#1\endcsname=\mppara@footgroupX
2759     \count\csname mpfootins#1\endcsname=1000
2760     \dimen\csname mpfootins#1\endcsname=\csuse{maxhnotesX@#1}
2761     \skip\csname mpfootins#1\endcsname=\csuse{beforenotesX@#1}%
2762     \advance\skip\csname mpfootins#1\endcsname by\csuse{afterruleX@#1}%
2763   \fi
2764 }
2765

\para@footsetupX \para@footsetupX{<series>}

```

```

2766 \newcommand*{\para@footsetupX}[1]{\csuse{notefontsizeX@#1}
2767 \setnotesXwidthliketwocolumns@{#1}%
2768 \dimen0=\baselineskip
2769 \multiply\dimen0 by 1024
2770 \divide\dimen0 by \columnwidth \multiply\dimen0 by \footfudgefiddle\relax%
2771 \expandafter
2772 \xdef\csname footfudgefactor#1\endcsname{%
2773 \expandafter\strip@pt\dimen0 }}
2774

```

`\parafootstartX` `\parafootstartX{<series>}`

```

2775 \newcommand*{\parafootstartX}[1]{%
2776 \ifdimequal{0pt}{\prenotesX@}{}%
2777 {%
2778 \iftoggle{prenotesX@}{%
2779 \togglefalse{prenotesX@}%
2780 \skip\csname footins#1\endcsname=%
2781 \dimexpr\csuse{prenotesX@}+\csuse{afterterruleX@#1}\relax%
2782 }%
2783 }%
2784 }%
2785 \vskip\skip\csname footins#1\endcsname%
2786 \leftskip=\z@
2787 \rightskip=\z@
2788 \parindent=\z@
2789 \vskip\skip\@nameuse{footins#1}%
2790 \setnotesXwidthliketwocolumns@{#1}%
2791 \setnotesXpositionliketwocolumns@{#1}%
2792 \print@footnotexrule{#1}%
2793 }
2794

```

`\para@vfootnoteX` `\para@vfootnoteX{<series>}{<text>}`

```

\mppara@vfootnoteX 2795 \newcommand*{\para@vfootnoteX}[2]{%
2796 \insert\csname footins#1\endcsname
2797 \bgroup
2798 \csuse{bhooknoteX@#1}
2799 \csuse{notefontsizeX@#1}
2800 \footplitskips
2801 \setbox0=\vbox{\hsize=\maxdimen
2802 \noindent\@nameuse{footfmt#1}{#1}{#2}}%
2803 \setbox0=\hbox{\unvbox0[#1]}%
2804 \dp0=\z@
2805 \ht0=\csname footfudgefactor#1\endcsname\wd0
2806 \box0
2807 \penalty0
2808 \egroup}
2809 \newcommand*{\mppara@vfootnoteX}[2]{%
2810 \global\setbox\@nameuse{mpfootins#1}\vbox{%
2811 \unvbox\@nameuse{mpfootins#1}

```

```

2812 \csuse{bhooknoteX@#1}
2813 \csuse{notefontsizeX@#1}
2814 \footsplitskips
2815 \setbox0=\vbox{\hsize=\maxdimen
2816 \noindent\color@begingroup\@nameuse{footfmt#1}{#1}{#2}\color@endgroup}%
2817 \setbox0=\hbox{\unvvh0[#1]}%
2818 \dp0=\z@
2819 \ht0=\csname footfudgefactor#1\endcsname\wd0
2820 \box0
2821 \penalty0}}
2822

\parafootfmtX \parafootfmtX{<series>}
2823 \newcommand*{\parafootfmtX}[2]{%
2824 \protected@edef\@currentlabel{%
2825 \@nameuse{@thefnmark#1}%
2826 }%
2827 \insertparafootsep{#1}%
2828 \ledsetnormalparstuffX{#1}%
2829 {\csuse{notenunfontX@#1}\csuse{notenunfontX@#1}\@nameuse{footfootmark#1}\strut%
2830 #2\penalty-10}}
2831

\para@footgroupX \para@footgroupX{<series>}
\mppara@footgroupX 2832 \newcommand*{\para@footgroupX}[1]{%
2833 \unvbox\csname footins#1\endcsname
2834 \ifcsstring{raggedX@#1}{L}{\RaggedLeft}{}%
2835 \ifcsstring{raggedX@#1}{R}{\RaggedRight}{}%
2836 \makehboxofhboxes
2837 \setbox0=\hbox{\unhbox0 \removehboxes}%
2838 \csuse{notefontsizeX@#1}
2839 \noindent\unhbox0\par}
2840 \newcommand*{\mppara@footgroupX}[1]{%
2841 \setnotesXwidthliketwocolumns@{#1}%
2842 \vskip\skip\@nameuse{mpfootins#1}
2843 \ifl@dpairing\ifparledgroup
2844 \leavevmode%
2845 \leavevmode\marks\parledgroup@{begin}%
2846 \marks\parledgroup@series{#1}%
2847 \marks\parledgroup@type{footnoteX}%
2848 \fi\fi\normalcolor
2849 \ifparledgroup%
2850 \ifl@dpairing%
2851 \else%
2852 \setnotesXwidthliketwocolumns@{#1}%
2853 \setnotesXpositionliketwocolumns@{#1}%
2854 \print@footnoteXrule{#1}%
2855 \fi%
2856 \else%
2857 \setnotesXwidthliketwocolumns@{#1}%

```

```

2858     \setnotesXpositionliketwocolumns@{#1}%
2859     \print@footnoteXrule{#1}%
2860 \fi%
2861 \unvbox\csname mpfootins#1\endcsname
2862 \ifcsstring{raggedX@#1}{L}{\RaggedLeft}{}%
2863 \ifcsstring{raggedX@#1}{R}{\RaggedRight}{}%
2864 \makehboxofhboxes
2865 \setbox0=\hbox{\unhbox0 \removehboxes}%
2866 \csuse{notefontsizeX@#1}
2867 \noindent\unhbox0\par}}
2868

```

## 27 Footnotes' width for two columns

We define here some commands which make sense only with `eledpar`, but must be called when defining notes paramaters. 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 `\noteswidthliketwocolumns@` at the on the setup for paragraphed notes.

```

2869
2870 \newdimen\old@hsize%
2871 \AtBeginDocument{\old@hsize=\hsize}%
2872
2873 \newcommand{\setXnoteswidthliketwocolumns@[1]}{%
2874   \global\let\hsize@fornote=\hsize%
2875   \global\old@hsize=\hsize%
2876   \iftoggle{Xnoteswidthliketwocolumns@#1}%
2877     {%
2878       \csuse{setwidthliketwocolumns@\columns@position}%
2879       \global\let\hsize@fornote=\hsize%
2880     }%
2881   {%
2882     \let\hsize=\hsize@fornote%
2883     \let\columnwidth=\hsize@fornote%
2884   }%
2885
2886 \newcommand{\setnotesXwidthliketwocolumns@[1]}{%
2887   \global\let\hsize@fornote=\hsize%
2888   \global\old@hsize=\hsize%
2889   \iftoggle{notesXwidthliketwocolumns@#1}%
2890     {%
2891       \csuse{setwidthliketwocolumns@\columns@position}%
2892       \global\let\hsize@fornote=\hsize%
2893     }%
2894   {%
2895     \let\hsize=\hsize@fornote%

```

```

2896 \let\columnwidth=\hsize@fornote%
2897 }%
2898

```

`\setXnotespositionliketwocolumns@` These two commands set the position of the critical / familiar footnotes, depending on the hooks `Xnoteswidthliketwocolumns` and `notesXwidthliketwocolumns`. They call commands which are defined only in `eledpar`, because this feature has no sens without `eledpar`.

```

2899 \newcommand{\setXnotespositionliketwocolumns@}[1]{%
2900   \iftoggle{Xnoteswidthliketwocolumns@#1}{%
2901     \csuse{setnotespositionliketwocolumns@\columns@position}%
2902   }{}%
2903 }%
2904
2905 \newcommand{\setnotesXpositionliketwocolumns@}[1]{%
2906   \iftoggle{notesXwidthliketwocolumns@#1}{%
2907     \csuse{setnotespositionliketwocolumns@\columns@position}%
2908   }{}%
2909 }%
2910

```

## 28 Footnotes' order

`\fnpos` The `\fnpos` and `\mpfnpos` simply place their arguments in `\@fnpos` and `\@mpfnpos`, which will be used later in the output routine.

```

\@fnpos 2911 \def\@fnpos{familiar-critical}
\@mpfnpos 2912 \def\@mpfnpos{critical-familiar}
2913 \newcommand{\fnpos}[1]{\xdef\@fnpos{#1}}
2914 \newcommand{\mpfnpos}[1]{\xdef\@mpfnpos{#1}}

```

## 29 Footnotes' rule

Because the footnotes' rules can be shifted to the right when footnotes are set like two columns, we don't print them directly, but we put them in a `\vbox`.

```

\print@Xfootnoterule
\print@footnotexrule 2915 \newcommand{\print@Xfootnoterule}[1]{%
2916   \vskip-\csuse{afterXrule@#1}%Because count in \dimen\csuse{#1footins}
2917   \nointerlineskip%
2918   \moveleft-\leftskip\vbox{\csuse{#1footnoterule}}%
2919   \nointerlineskip%
2920   \vskip\csuse{afterXrule@#1}%
2921 }%
2922
2923 \newcommand{\print@footnotexrule}[1]{%
2924   \vskip-\csuse{afterruleX@#1}%Because count in \dimen\csuse{footins#1}
2925   \nointerlineskip%

```

```

2926 \moveleft-\leftskip\vbox{\csuse{footnoterule#1}}}%
2927 \nointerlineskip%
2928 \vskip\csuse{afterXruleX@#1}%
2929 }%
2930

```

### 30 Specific skip for first series of footnotes

`\beforeXnotes` insert a specific skip for the first series of notes in a page. As we can 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 `\beforeXnotes`. 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 of the current series to the value normally used by the series which was marked as the first of the page. 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 `\afterXrule` 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.

```

firstXseries@
prepare@preXnotes 2931 \gdef\firstXseries@{}
2932 \newcommand{\prepare@preXnotes}[1]{%
2933   \ifdimequal{0pt}{\preXnotes@}%
2934   {}%
2935   {%
2936     \IfStrEq{\firstXseries@}{\preXnotes@}%
2937     \global\skip\csuse{#1footins}=\preXnotes@%
2938     \global\advance\skip\csname #1footins\endcsname by\csuse{afterXrule@#1}%
2939     \gdef\firstXseries@{#1}%
2940   }%

```

```

2941    {%
2942      \ifseriesbefore{#1}{\firstXseries@}%
2943      {%
2944        \global\skip\csuse{#1footins}=\csuse{beforeXnotes@\firstXseries@}%
2945        \global\advance\skip\csname #1footins\endcsname by\csuse{afterXrule@#1}%
2946        \gdef\firstXseries@{#1}%
2947      }%
2948    }%
2949  }%
2950 }%
2951 }

```

The same thing is required for familiar notes and `\prenotesX`.

```

firstseriesX@
prepare@prenotesX 2952 \gdef\firstseriesX@{}
2953 \newcommand{\prepare@prenotesX}[1]{%
2954   \ifdimequal{0pt}{\prenotesX@}%
2955   {%
2956     {%
2957       \IfStrEq{\firstseriesX@}{}%
2958       \global\skip\csuse{footins#1}=\prenotesX@%
2959       \global\advance\skip\csname footins#1\endcsname by\csuse{afterruleX@#1}%
2960       \gdef\firstseriesX@{#1}%
2961     }%
2962     {%
2963       \ifseriesbefore{#1}{\firstseriesX@}%
2964       {%
2965         \global\skip\csuse{footins#1}=\csuse{beforenotesX@\firstseriesX@}%
2966         \global\advance\skip\csname footins#1\endcsname by\csuse{afterruleX@#1}%
2967         \gdef\firstXseries@{#1}%
2968       }%
2969     }%
2970   }%
2971 }%
2972 }

```

## 31 Footnotes' output

`\print@notesX` We have to add all the new kinds of familiar footnotes to the output routine.  
`\doextrafeeti` These are the class 1 feet. The normal way to add one series. `\print@Xnotes` is  
`\doreinextrafeeti` replaced by `eledpar` when using `\Pages`.

```

2973 \newcommand\print@notesX[1]{%
2974   \csuse{footstart#1}{#1}%
2975   \csuse{footgroup#1}{#1}%
2976 }%

```

We print all the series of notes by looping on them. We check before printing them that they are not voided.



```

2977 \newcommand*{\doxtrafeeti}{%
2978   \unless\ifnofamiliar%
2979     \gdef\firstseriesX@{%
2980       \setbox\@outputbox \vbox{%
2981         \unvbox\@outputbox%
2982         \def\do##1{%
2983           \ifvoid\csuse{footins##1}\else%
2984             \global\skip\csuse{footins##1}=\csuse{beforenotesX@##1}%
2985             \global\advance\skip\csuse{footins##1} by\csuse{afterruleX@##1}%
2986             \print@notesX{##1}%
2987           \fi%
2988         }%
2989         \dolistloop{\@series}}%
2990   \fi%
2991 }%
2992
2993 \newcommand{\doreinxtrafeeti}{%
2994   \unless\ifnofamiliar%
2995     \def\do##1{%
2996       \ifvoid\csuse{footins##1}\else
2997         \insert%
2998           \csuse{footins##1}
2999           {\unvbox\csuse{footins##1}}%
3000       \fi%
3001     }%
3002     \dolistloop{\@series}%
3003   \fi%
3004 }%
3005

```

\addfootinsX Juste for backward compatibility: print a warning message.

```

3006 \newcommand*{\addfootinsX}[1]{%
3007   \led@warn@AddfootinsX@obsolete%
3008   \footnormalX{#1}%
3009   \g@addto@macro{\doxtrafeeti}{%
3010     \setbox\@outputbox \vbox{%
3011       \unvbox\@outputbox
3012       \ifvoid\@nameuse{footins#1}\else
3013         \@nameuse{footstart#1}{#1}\@nameuse{footgroup#1}{#1}\fi}}%as
3014   \g@addto@macro{\doreinxtrafeeti}{%
3015     \ifvoid\@nameuse{footins#1}\else
3016       \insert\@nameuse{footins#1}{\unvbox\@nameuse{footins#1}}\fi}%
3017   \g@addto@macro{\l@dfambeginmini}{%
3018     \expandafter\expandafter\expandafter\let\expandafter\expandafter
3019       \csname footnote#1\endcsname \csname mpfootnote#1\endcsname}%
3020   \g@addto@macro{\l@dfamendmini}{%
3021     \ifvoid\@nameuse{mpfootins#1}\else\@nameuse{mpfootgroup#1}{#1}\fi}%
3022 }

```

## 32 Endnotes

First, check the noend option.

```
3023 \ifbool{noend@}{}{%Used instead of \ifnoend@ to prevent expansion problem
```

```

\l@d@end Endnotes of all varieties are saved up in a file, typically named <jobname>.end.
\ifl@dend@ \l@d@end is the output stream number for this file, and \ifl@dend@ is a flag that's
\l@dend@true true when the file is open.
```

```
\l@dend@false 3024 \newwrite\l@d@end
```

```
3025 \newif\ifl@dend@
```

```

\l@dend@open \l@dend@open and \l@dend@close are the macros that are used to open and close
\l@dend@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's no need to defer any writing to catch information
from the output routine.
```

```
3026 \newcommand{\l@dend@open}[1]{\global\l@dend@true\immediate\openout\l@d@end=#1\relax}
```

```
3027 \newcommand{\l@dend@close}{\global\l@dend@false\immediate\closeout\l@d@end}
```

```
3028
```

```

\l@dend@stuff \l@dend@stuff is used by \beginnumbering to do everything that's 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.
```

```
3029 \newcommand{\l@dend@stuff}{%
```

```
3030 \ifl@dend@\relax\else
```

```
3031 \l@dend@open{<jobname>.end}%
```

```
3032 \fi
```

```
3033 \immediate\write\l@d@end{\string\l@d@section{<the>\section@num}}}
```

```
3034
```

```
\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 eledmac does nothing with this
information, but it's 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.

```
3035 \global\notbool{parapparatus@}{\long\def\endprint#1#2#3#4#5{%
```

```
3036 \ifXendinsertsep%
```

```
3037 \hskip\csuse{Xendafternote@#4}%
```

```

3038 \csuse{Xendsep@#4}%
3039 \else%
3040 \iftoggle{Xendparagraph@#4}%
3041 {\global\Xendinsertsep@true}%
3042 {}%
3043 \fi%
3044 \xdef\@currentseries{#4}%
3045 \def\do##1{%
3046 \toggletrue{##1@}%
3047 }%
3048 \notblank{#5}{\docsvlist{#5}}{}%
3049 \csuse{bhookXendnote@#4}%
3050 \csuse{Xendnotefontsize@#4}%
3051 {%
3052 \csuse{Xendnotenumfont@#4}%
3053 \ifdimequal{\csuse{boxXendlinenumber@#4}}{Opt}%
3054 {\printendlines#1}%
3055 {\leavevmode%
3056 \hbox to \csuse{boxXendlinenumber@#4}%
3057 {%
3058 \IfSubStr{RC}{\csuse{boxXendlinenumberalign@#4}}{\hfill}}{}%
3059 \printendlines#1}%
3060 \IfSubStr{LC}{\csuse{boxXendlinenumberalign@#4}}{\hfill}}{}%
3061 }%
3062 }%
3063 \enspace{%
3064 \nottoggle{Xendlemmadisablefontselection@#4}%
3065 {\select@lemmafont#1|#2}%
3066 {#2}%
3067 }%
3068 \ifboolexpr{%
3069 tog1 {nosep}%
3070 or test{\ifcseempty{Xendlemmaseparator@#4}}%
3071 }%
3072 {\hskip\csuse{Xendinplaceoflemmaseparator@#4}}%
3073 {\nobreak%
3074 \hskip\csuse{Xendbeforelemmaseparator@#4}%
3075 \csuse{Xendlemmaseparator@#4}%
3076 \hskip\csuse{Xendafterlemmaseparator@#4}%
3077 }%
3078 #3%
3079 \nottoggle{Xendparagraph@#4}{\par}{}%
3080 \togglefalse{fulllines}%
3081 \togglefalse{nosep}%
3082 }%
3083
3084 \let\l@d@section=\@gobble
3085

```

`\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.

```
3086 \newcommand*{\setprintendlines}[6]{%
3087   \l@dpnumfalse \l@ddashfalse
3088   \ifnum#4=#1 \else
3089     \l@dpnumtrue
3090     \l@ddashtrue
3091   \fi
```

We print the ending line number if: (1) we're printing the ending page number, or (2) it's different from the starting line number.

```
3092   \ifl@dpnum \l@d@elintrue \else \l@d@elinfalse \fi
3093   \ifnum#2=#5 \else
3094     \l@d@elintrue
3095     \l@ddashtrue
3096   \fi
```

We print the starting sub-line if it's nonzero.

```
3097   \l@d@ssubfalse
3098   \ifnum#3=0 \else
3099     \l@d@ssubtrue
3100   \fi
```

We print the ending sub-line if it's nonzero and: (1) it's different from the starting sub-line number, or (2) the ending line number is being printed.

```
3101   \l@d@eslfalse
3102   \ifnum#6=0 \else
3103     \ifnum#6=#3
3104       \ifl@d@elin \l@d@esltrue \else \l@d@eslfalse \fi
3105     \else
3106       \l@d@esltrue
3107       \l@ddashtrue
3108     \fi
3109   \fi%
3110   \ifl@d@dash%
3111   \ifboolexpr{togl{fulllines@} or test{\ifcsempy{Xendtwolines@ \@currentseries}}}%
3112     {}%
3113     {%
3114     \setistwofollowinglines{#1}{#2}{#4}{#5}%
3115     \ifboolexpr{%
3116       (%
3117         togl {Xendtwolinesbutnotmore@ \@currentseries}%
3118         and not%
```

```

3119          (%)
3120          bool {istwofollowinglines@}%
3121          )%
3122      )%
3123      or%
3124      (%)
3125          (not test{\ifnumequal{#1}{#4}})%
3126          and togl{Xendtwolinesonlyinsamepage@ \@currentseries}%
3127      )%
3128      }%
3129      {}%
3130      {%
3131          \l@d@dashfalse%
3132          \l@d@twolinestrue%
3133          \l@d@elinfalse%
3134          \l@d@eslfalse%
3135          \ifcsempy{Xendmorethantwolines@ \@currentseries}%
3136          {}%
3137          {\ifistwofollowinglines@ \else%
3138              \l@d@morethantwolinestrue%
3139              \fi%
3140          }%
3141      }%
3142      }%
3143      \fi%

```

End of \setprintendlines.

```
3144 }%
```

\printendlines Now we're ready to print it all.

```

3145 \def\printendlines#1|#2|#3|#4|#5|#6|#7|{\begingroup
3146   \setprintendlines{#1}{#2}{#3}{#4}{#5}{#6}%

```

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.

```

3147   \ifdimequal{\csuse{boxXendstartlinenum@ \@currentseries}}{0pt}%
3148   {\bgroup}%
3149   {\leavevmode\hbox to \csuse{boxXendstartlinenum@ \@currentseries}\bgroup\hfill}%
3150   \printnpnum{#1}%
3151   \ifoldprintnpnumspace@ \space \fi%
3152   \linenumrep{#2}%
3153   \ifl@d@ssub \fullstop \sublinenumrep{#3} \fi
3154   \egroup%

```

And now, print the dash + the end line number, or the line number range symbol.

```

3155   \ifdimequal{\csuse{boxXendendlinenum@ \@currentseries}}{0pt}%
3156   {\bgroup}%

```

```

3157     {\hbox to \csuse{boxXendendlinenum@\@currentseries}\bgroup}%
3158     \ifl@d@twolines%
3159     \ifl@d@morethantwolines%
3160     \csuse{Xendmorethantwolines@\@currentseries}%
3161     \else%
3162     \csuse{Xendtwolines@\@currentseries}%
3163     \fi%
3164     \else%
3165     \ifl@d@dash \endashchar\fi%
3166     \ifl@d@pnum \printnpnum{#4}\fi%
3167     \ifl@d@elin \linenumrep{#5}\fi%
3168     \ifl@d@esl \ifl@d@elin \fullstop\fi \sublinenumrep{#6}\fi%
3169     \fi%
3170     \ifdimequal{\csuse{boxXendendlinenum@\@currentseries}}{Opt}%
3171     {}%
3172     {\hfill}%Prevent underfull hbox
3173     \egroup%
3174     \endgroup%
3175 }%
3176

```

`\printnpnum` A macro to print a page number in an endnote.

```

3177 \newcommand*{\printnpnum}[1]{p.#1} }
3178

```

`\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.

```

3179 \newif\ifXendinsertsep@
3180 \newcommand*{\doendnotes}[1]{\l@dend@close
3181     \begingroup
3182     \makeatletter
3183     \expandafter\let\csname #1end\endcsname=\endprint
3184     \input\jobname.end
3185     \global\Xendinsertsep@false%
3186     \endgroup}

```

`\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.

```

3187 \newcommand*{\doendnotesbysection}[1]{%
3188     \l@dend@close%
3189     \global\expandafter\advance\csname #1end@bysection\endcsname by 1%
3190     \begingroup%
3191     \makeatletter%
3192     \def\l@d@section##1{%
3193         \ifnumequal{##1}{\csname #1end@bysection\endcsname}%

```

```

3194      {\cslet{#1end}{\endprint}}}%
3195      {\cslet{#1end}{\@gobblefive}}}%
3196    }%
3197    \input\jobname.end%
3198    \global\Xendinsertsep@false%
3199  \endgroup%
3200 }%

```

`\noendnotes` The `\noendnotes` command is deprecated. You should prefer `noend` options.

```

3201 \newcommand*{\noendnotes}{%
3202   \led@war@noendnotesDeprecated%
3203   \global\let\l@dend@stuff=\relax%
3204   \global\chardef\l@d@end=16%
3205 }%

```

End of section for end notes

```

3206 }%

```

## 33 Generate series

In this section, X means the name of the series (A, B etc.)

`\series` `\series\series` creates one more newseries. It's the public command, which just loops on the private command `\newseries@`.

```

3207 \newcommand{\newseries}[1]{%
3208   \def\do##1{\newseries@{##1}}%
3209   \docsvlist{#1}
3210 }

```

`\@series` The `\series@` macro is an etoolbox list, which contains the name of all series.

```

3211 \newcommand{\@series}{}

```

The command `\newseries@\series` creates a new series of the footnote.

`\newseries@`

```

3212 \newcommand{\newseries@}[1]{

```

### 33.1 Test if series is still existing

```

3213   \xifinlist{#1}{\@series}{\led@warn@SeriesStillExist{#1}}%
3214   {%

```

### 33.2 Init specific to `eledpar`

When calling `\newseries@` after having loaded `eledpar`

```

3215   \ifdefined\newseries@eledpar%
3216   \newseries@eledpar{#1}%
3217   \fi%

```

### 33.3 For critical footnotes

Critical footnotes are those which start with letters. We look for the `\nocritical` option of `eledmac`.

```
3218 \unless\ifnocritical@
```

#### 33.3.1 Options

```
3219 \newtoggle{Xparindent@#1}
3220 \newtoggle{Xlemmadisablefontselection@#1}
3221 \csgdef{Xhangindent@#1}{0pt}%
3222 \csgdef{Xragged@#1}{}%
3223 \csgdef{hsizetwocol@#1}{0.45 \hsize}%
3224 \csgdef{hsizethreecol@#1}{.3 \hsize}%
3225 \csgdef{Xcolalign@#1}{\raggedright}%
3226 \csgdef{Xnotenumfont@#1}{\notenumfont}%
3227 \csgdef{Xnotefontsize@#1}{\notefontsetup}%
3228 \csgdef{bhookXnote@#1}{}%
3229
3230 \csgdef{boxlinenum@#1}{Opt}%
3231 \csgdef{boxlinenumalign@#1}{L}%
3232
3233 \csgdef{boxstartlinenum@#1}{Opt}%
3234 \csgdef{boxendlinenum@#1}{Opt}%
3235
3236 \csgdef{boxsymlinenum@#1}{Opt}%
3237 \newtoggle{numberonlyfirstinline@#1}%
3238 \newtoggle{numberonlyfirstintwolines@#1}%
3239 \csgdef{twolines@#1}{}%
3240 \csgdef{morethantwolines@#1}{}%
3241 \newtoggle{twolinesbutnotmore@#1}%
3242 \newtoggle{twolinesonlyinsamepage@#1}%
3243 \newtoggle{onlypstartinfootnote@#1}%
3244 \newtoggle{pstartinfootnoteeverytime@#1}%
3245 \newtoggle{pstartinfootnote@#1}%
3246 \csgdef{symlinenum@#1}{\symplinenumber}%
3247 \newtoggle{nonumberinfootnote@#1}%
3248 \csgdef{beforenumberinfootnote@#1}{Opt}%
3249 \csgdef{afternumberinfootnote@#1}{0.5em}%
3250 \newtoggle{nonbreakableafternumber@#1}%
3251 \csgdef{beforesymlinenum@#1}{\csuse{beforenumberinfootnote@#1}}%
3252 \csgdef{aftersymlinenum@#1}{\csuse{afternumberinfootnote@#1}}%
3253 \csgdef{inplaceofnumber@#1}{1em}%
3254 \global\cslet{lemmaseparator@#1}{\rbracket}%
3255 \csgdef{beforelemmaseparator@#1}{0em}%
3256 \csgdef{afterlemmaseparator@#1}{0.5em}%
3257 \csgdef{inplaceoflemmaseparator@#1}{1em}%
3258 \csgdef{beforeXnotes@#1}{1.2em \@plus .6em \@minus .6em}
3259 \csgdef{afterXrule@#1}{Opt}
3260 \csgdef{txtbeforeXnotes@#1}{}
```



```

3261 \csgdef{maxhXnotes@#1}{\ledfootinsdim}
3262 \newtoggle{Xnoteswidthliketwocolumns@#1}%

```

### 33.3.2 Create inserts, needed to add notes in foot

As regards inserts, see chapter 15 of the TeXBook by D. Knuth.

```

3263 \expandafter\newinsert\csname #1footins\endcsname%
3264 \unless\ifnoledgroup%
3265 \expandafter\newinsert\csname mp#1footins\endcsname%
3266 \fi%

```

### 33.3.3 Create commands for critical apparatus, \Afootnote, \Bfootnote etc.

Note the double # in command: it's because command is made inside another command.

```

3267 \global\newbool{parapparatus@}{\expandafter\newcommand\expandafter *}{\expandafter\newcommand}\csname
3268   \ifnum\@edtext@level>0%
3269   \begingroup%
3270   \newcommand{\content}{##2}%
3271   \ifnumberedpar%
3272   \ifledRcol%
3273   \ifluatex%
3274     \footnotelang@lua[R]%
3275   \fi%
3276   \ifundefined{xpg@main@language}%if polyglossia
3277     {}%
3278     {\footnotelang@poly[R]}%
3279   \footnoteoptions@[R]{##1}{true}%
3280   \xright@appenditem{%
3281     \noexpand\prepare@preXnotes{#1}%
3282     \noexpand\prepare@edindex@fornote{\l@d@nums}%
3283   \unexpanded{\def\sw@list@inedtext}{\expandafter\unexpanded\expandafter{\sw@inthisedtext}}%
3284     \noexpand\csuse{v#1footnote}{#1}%
3285     {\l@d@nums}{\expandonce\@tag}{\expandonce\content}}%
3286   }to\inserts@listR
3287   \footnoteoptions@[R]{##1}{false}%
3288   \global\advance\insert@countR \@ne%
3289 \else%
3290   \ifluatex%
3291   \footnotelang@lua%
3292   \fi%
3293   \ifundefined{xpg@main@language}%if polyglossia
3294     {}%
3295     {\footnotelang@poly}%
3296   \footnoteoptions@{##1}{true}%
3297   \xright@appenditem{%
3298     \noexpand\prepare@preXnotes{#1}%
3299     \noexpand\prepare@edindex@fornote{\l@d@nums}%
3300   \unexpanded{\def\sw@list@inedtext}{\expandafter\unexpanded\expandafter{\sw@inthisedtext}}%

```

```

3301             \noexpand\csuse{v#1footnote}{#1}%
3302             {{\l@d@nums}{\expandonce\@tag}{\expandonce\content}}}%
3303             }\to\inserts@list
3304             \global\advance\insert@count \@ne%
3305             \footnoteoptions@{##1}{false}%
3306         \fi
3307     \else
3308         \csuse{v#1footnote}{#1}{\{0|0|0|0|0|0|0\}{\{##1\}}}%
3309     \fi%
3310 \endgroup%
3311 \else%
3312     \led@err@FootnoteWithoutEdtext%
3313 \fi%
3314 \ignorespaces%
3315 }

```

We need to be able to modify `eledmac`'s footnote macros and restore their

```

3316 \global\csletcs{#1@footnote}{#1footnote}

```

### 33.3.4 Set standard display

```

3317 \footnormal{#1}

```

End of for critical footnotes.

```

3318 \fi

```

## 33.4 For familiar footnotes

Familiar footnotes are those which end with letters. We look for the `\nofamiliar` option of `eledmac`.

```

3319 \unless\ifnofamiliar@

```

### 33.4.1 Options

```

3320 \newtoggle{parindentX@#1}
3321 \csgdef{hangindentX@#1}{0pt}%
3322 \csgdef{raggedX@#1}{}%
3323 \csgdef{hsizetwocolX@#1}{0.45 \hsize}%
3324 \csgdef{hsizethreecolX@#1}{.3 \hsize}%
3325 \csgdef{colalignX@#1}{\raggedright}%
3326 \csgdef{notenumfontX@#1}{\notenumfont}%
3327 \csgdef{notefontsizeX@#1}{\notefontsetup}%
3328 \csgdef{bhooknoteX@#1}{}%
3329 \csgdef{afterruleX@#1}{Opt}
3330 \csgdef{beforenotesX@#1}{1.2em \@plus .6em \@minus .6em}
3331 \csgdef{maxhnotesX@#1}{\ledfootinsdim}%
3332 \newtoggle{notesXwidthliketwocolumns@#1}%
3333 % End of for familiar footnotes.
3334 % \subsubsection{Create inserts, needed to add notes in foot}
3335 % As regards inserts, see chapter 15 of the TeXBook by D. Knuth.
3336 % \begin{macrocode}

```

```

3337 \expandafter\newinsert\csname footins#1\endcsname%
3338 \unless\ifnoledgroup%
3339 \expandafter\newinsert\csname mpfootins#1\endcsname%
3340 \fi%

```

### 33.4.2 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.

```

3341
3342 \global\expandafter\newcommand\csname footnote#1\endcsname[1]{%
3343 \begingroup%
3344 \prepare@prenotesX{#1}%
3345 \newcommand{\content}{##1}%
3346 \stepcounter{footnote#1}%
3347 \protected@csxdef{@thefnmark#1}{\csuse{thefootnote#1}}%
3348 \nottoggle{nomk@}%Nomk is set to true when using \footnoteXnomk with eldpar
3349 {\csuse{@footnotemark#1}}%
3350 {}%
3351 \ifluatex%
3352 \xdef\footnote@luatextextdir{\the\luatextextdir}%
3353 \xdef\footnote@luatexpardir{\the\luatexpardir}%
3354 \fi%
3355 \csuse{vfootnote#1}{#1}{\expandonce\content}\m@mmf@prepare%
3356 \endgroup%
3357 }

```

Then define the counters.

```

3358 \newcounter{footnote#1}
3359 \global\expandafter\renewcommand\csname thefootnote#1\endcsname{\arabic{footnote#1}}

```

Don't forget to initialize series

```

3360 \footnormalX{#1}
3361 \fi

```

## 33.5 Common options to critical and familiar footnotes

For historical reasons, `parafootsep` and `afternote` hooks are common to critical and familiar footnotes.

```

3362 \csgdef{parafootsep@#1}{\parafootftmsep}%
3363 \csgdef{afternote@#1}{1em plus.4em minus.4em}%

```

## 33.6 The endnotes

Endnotes are commands like `\Xendnote`, where `X` is a series letter. First, we check for the `noend` options.

```

3364 \unless\ifnoend@

```

### 33.6.1 The main macro

The `\Xendnote` macro functions to write one endnote to the `.end` 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 doesn't exceed restrictions on the length of lines in files.

```

3365
3366   \global\expandafter\newcommandx\csname #1endnote\endcsname[2][1,usedefault]{%
3367       \bgroup%
3368       \newlinechar='40%
3369       \global\@noneed@Footnotetrue%
3370       \newcommand{\content}{##2}%
3371       \immediate\write\l@d@end{%
3372           \expandafter\string\csname #1end\endcsname%
3373           {\ifnumberedpar@l@d@nums\fi}%
3374           {\ifnumberedpar@\expandonce\tag\fi}%
3375           {\expandonce\content}%
3376           {#1}%
3377           {##1}%
3378           \@percentchar%
3379       }%
3380       \egroup%
3381       \ignorespaces%
3382   }%

```

`\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.

```

3383
3384   \global\cslet{#1end}{\@gobblefive}

```

We need to store the number of times `\doendnotesbysection` is called for one series.

```

3385   \global\expandafter\newcount\csname #1end@bysection\endcsname%

```

### 33.6.2 The options

```

3386   \csgdef{Xendtwolines@#1}{}%
3387   \csgdef{Xendmoreethantwolines@#1}{}%
3388   \newtoggle{Xendtwolinesbutnotmore@#1}{}%
3389   \newtoggle{Xendtwolinesonlyinsamepage@#1}{}%
3390   \newtoggle{Xendlemmadisablefontselection@#1}{}%
3391   \csgdef{Xendnotenumfont@#1}{\notenumfont}%
3392   \csgdef{Xendnotefontsize@#1}{\notefontsetup}%
3393   \csgdef{bhookXendnote@#1}{}%
3394
3395   \csgdef{boxXendlinenumber@#1}{0pt}%

```

```

3396      \csgdef{boxXendlinenumalign@#1}{L}%
3397
3398      \csgdef{boxXendstartlinenum@#1}{Opt}%
3399      \csgdef{boxXendendlinenum@#1}{Opt}%
3400
3401      \csgdef{Xendlemmaseparator@#1}{}%
3402      \csgdef{Xendbeforelemmaseparator@#1}{0em}%
3403      \csgdef{Xendafterlemmaseparator@#1}{0.5em}%
3404      \csgdef{Xendinplaceoflemmaseparator@#1}{0.5em}%
3405
3406      \newtoggle{Xendparagraph@#1}%
3407      \csgdef{Xendafternote@#1}{1em plus.4em minus.4em}%
3408      \csgdef{Xendsep@#1}{}%

```

End of endnotes declaration

```

3409      \fi%

```

Dump series in \@series

```

3410      \listxadd{\@series}{#1}
3411    }
3412}% End of \newseries

```

### 33.7 Init standards series (A,B,C,D,E,Z)

```

3413 \expandafter\newseries\expandafter{\default@series}

```

## 34 Display

### 34.1 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.

```

3414 \newcommand{\seriesatbegin}[1]{%
3415   \StrDel{\@series}{#1}[\@series]%
3416   \edef\@new{}%
3417   \listead{\@new}{#1}%
3418   \listead{\@new}{\@series}%
3419   \xdef\@series{\@new}%
3420 }

```

`\seriesatend` And `\seriesatend` moves the series to the end of the list.

```

3421 \newcommand{\seriesatend}[1]{%
3422   \StrDel{\@series}{#1}[\@series]%
3423   \edef\@new{}%
3424   \listead{\@new}{\@series}%
3425   \listead{\@new}{#1}%
3426   \xdef\@series{\@new}%
3427 }

```

## 34.2 Test series order

`\ifseriesbefore` `\ifseriesbefore{<seriesA>}{<seriesB>}{<true>}{<false>}` expands `<true>` if `<seriesA>` is printed before `<seriesB>`, expands `<false>` otherwise.

```
3428 \newcommand{\ifseriesbefore}[4]{%
3429   \StrPosition{\@series}{#1}[\@first]%
3430   \StrPosition{\@series}{#2}[\@second]%
3431   \ifnumgreater{\@second}{\@first}{#3}{#4}%
3432 }
```

## 34.3 Options

### 34.3.1 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 `\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`.

```
3433 \newcommandx{\settoggle@series}[5][4,5,usedefault]{%
3434   \def\do##1{%
3435     \global\settoggle{#2@##1}{#3}%
3436     \ifstrequal{#4}{reload}%
3437     {%
3438       \csuse{foot\csuse{series@display##1}}{##1}%
3439       \csuse{foot\csuse{series@displayX##1}}{##1}%
3440     }%
3441     {}%
3442   }%
3443   \ifstreempty{#1}{%
3444     \dolistloop{\@series}%
3445     \ifstreempty{#5}{}%
3446     \docsvlist{#5}%
3447   }
3448   }%
3449   {%
3450     \docsvlist{#1}%
3451   }%
3452 }
```

`\setcommand@series` `\setcommand@series{<series>}{<command>}{<value>}` is a generic command to change hooks into form of commands 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 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`.

```

3453 \newcommandx{\setcommand@series}[5][4,5,usedefault]{%
3454     \def\do##1{
3455         \csgdef{#2@##1}{#3}
3456         \ifstrequal{#4}{reload}{
3457             \csuse{foot\csuse{series@display##1}}{##1}
3458             \csuse{foot\csuse{series@displayX##1}}{##1}
3459         }{}}
3460     \ifstreempty{#1}{%
3461         \dolistloop{\@series}%
3462         \ifstreempty{#5}{}%
3463         \docsvlist{#5}
3464     }
3465 }%
3466 {%
3467     \docsvlist{#1}%
3468 }%
3469 }%
```

### 34.3.2 Tools to generate options commands

`\newhookcommand@series` `\newhookcommand@series\command names` is a generic command to add new commands for hooks, like `\hsizetwocol`. 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 `\twolines`. The second argument is also used to create commands named `\<hookname><pseudoseris>`, like `\twolinesappref`.

```

3470 \newcommandx{\newhookcommand@series}[2][2,usedefault]{%
3471     \global\expandafter\newcommand\expandafter*\csname #1\endcsname[2][]{%
3472         \setcommand@series{##1}{#1}{##2}[][#2]%
3473     }%
3474     \ifstreempty{#2}{}%
3475     \def\do##1{%
3476         \global\expandafter\newcommand\expandafter*\csname #1##1\endcsname[1]{%
3477             \csuse{#1}[##1]{####1}%
3478         }%

```

```

3479 }%
3480 \docsvlist{#2}%
3481 }%
3482 }

```

`\newhooktoggle@series` `\newhooktoggle@series`\command names is a generic command to add new commands for a new toggle hook, like `\numberonlyfirstinline`. The second argument is also used to create commands named `\<hookname><pseudoseris>`, like `\twolinesbutnotmoreappref`.

```

3483 \newcommandx{\newhooktoggle@series}[2][2,usedefault]{%
3484 \global\expandafter\newcommandx\expandafter*\csname #1\endcsname[2][1,2={true},usedefault]{%
3485 \settoggle@series{##1}{#1}{##2}[][#2]%
3486 }%
3487 \ifstrempy{#2}{}{%
3488 \def\do##1{%
3489 \global\expandafter\newcommand\expandafter*\csname #1##1\endcsname{%
3490 \csuse{#1}[##1]%
3491 }%
3492 }%
3493 \docsvlist{#2}%
3494 }%
3495 }

```

`\newhooktoggle@series` `\newhookcommand@toggle@reload` does the same thing as `\newhooktoggle@series` but the commands created by this macro also reload the series which is displayed (normal, paragraph, twocol, threecol).

```

3496 \newcommand{\newhooktoggle@series@reload}[1]{%
3497 \global\expandafter\newcommandx\expandafter*\csname #1\endcsname[2][1,2={true},usedefault]{%
3498 \settoggle@series{##1}{#1}{##2}[reload]%
3499 }%
3500 }%

```

`\newhookcommand@series@reload` `\newhookcommand@series@reload` does the same thing as `\newhookcommand@series` but the commands created by this macro also reload the series which is displayed (normal, paragraph, twocol, threecol).

```

3501 \newcommand{\newhookcommand@series@reload}[1]{%
3502 \global\expandafter\newcommand\expandafter*\csname #1\endcsname[2][]{%
3503 \setcommand@series{##1}{#1}{##2}[reload]%
3504 }%
3505 }

```

### 34.3.3 Options for critical notes

Before generating the commands that are used to set the critical notes, such as `\numberonlyfirstinline`, `\lemmaseparator` and the like, we check the `nocritical` option.

```

3506 \unless\ifnocritical@
3507 \newhooktoggle@series{Xparindent}

```



```

3508 \newhookcommand@series{twolines}[appref]
3509 \newhookcommand@series{morethantwolines}[appref]
3510 \newhooktoggle@series{twolinesbutnotmore}[appref]
3511 \newhooktoggle@series{twolinesonlyinsamepage}[appref]
3512 \newhookcommand@series{Xhangindent}
3513 \newhookcommand@series{Xragged}
3514 \newhookcommand@series{hsizetwocol}
3515 \newhookcommand@series{hsizethreecol}
3516 \newhookcommand@series{Xcolalign}%
3517 \newhookcommand@series{Xnotenumfont}
3518 \newhookcommand@series{bhookXnote}
3519 \newhookcommand@series{boxsymlinenum}%
3520 \newhookcommand@series{symlinenum}
3521 \newhookcommand@series{beforenumberinfootnote}
3522 \newhookcommand@series{afternumberinfootnote}
3523 \newhookcommand@series{beforesymlinenum}
3524 \newhookcommand@series{aftersymlinenum}
3525 \newhookcommand@series{inplaceofnumber}
3526 \newhookcommand@series{lemmaseparator}
3527 \newhookcommand@series{beforelemmaseparator}
3528 \newhookcommand@series{afterlemmaseparator}
3529 \newhookcommand@series{inplaceoflemmaseparator}
3530 \newhookcommand@series{txtbeforeXnotes}
3531 \newhookcommand@series@reload{afterXrule}
3532 \newhooktoggle@series{numberonlyfirstinline}
3533 \newhooktoggle@series{numberonlyfirstintwolines}
3534 \newhooktoggle@series{nonnumberinfootnote}
3535 \newhooktoggle@series{pstartinfootnote}
3536 \newhooktoggle@series{pstartinfootnoteeverytime}%
3537 \newhooktoggle@series{onlypstartinfootnote}
3538 \newhooktoggle@series{nonbreakableafternumber}
3539 \newhooktoggle@series{Xlemmadisablefontselection}
3540 \newhookcommand@series@reload{maxhXnotes}
3541 \newhookcommand@series@reload{beforeXnotes}
3542 \newhooktoggle@series@reload{Xnoteswidthliketwocolumns}%
3543 \newhookcommand@series{Xnotefontsize}
3544
3545 \newhookcommand@series{boxlinenum}%
3546 \newhookcommand@series{boxlinenumalign}%
3547
3548 \newhookcommand@series{boxstartlinenum}%
3549 \newhookcommand@series{boxendlinenum}%
3550
3551 \fi

```

#### 34.3.4 Options for familiar notes

Before generating the optional commands for familiar notes, we check the `nofamiliar` option.

```

3552 \unless\ifnofamiliar@
3553   \newhooktoggle@series{parindentX}
3554   \newhookcommand@series{hangindentX}
3555   \newhookcommand@series{raggedX}
3556   \newhookcommand@series{hsizetwocolX}
3557   \newhookcommand@series{hsizethreecolX}
3558   \newhookcommand@series{colalignX}%
3559   \newhookcommand@series{notenumfontX}
3560   \newhookcommand@series{bhooknoteX}
3561   \newhookcommand@series@reload{beforenotesX}
3562   \newhookcommand@series@reload{maxhnotesX}
3563   \newhooktoggle@series@reload{notesXwidthliketwocolumns}%
3564   \newhookcommand@series@reload{afterruleX}
3565   \newhookcommand@series{notefontsizeX}
3566 \fi

```

### 34.3.5 Common options to critical and familiar footnotes

For historical reasons, `parafootsep` and `afternote` hooks are common to critical and familiar footnotes.

```

3567 \newhookcommand@series{parafootsep}
3568 \newhookcommand@series{afternote}

```

### 34.3.6 Options for endnotes

Before generating the commands that are used to set the endnotes, such as `\numberonlyfirstinline`, `\lemmaseparator` and the like, we check the `noend` option.

```

3569 \unless\ifnoend@
3570   \newhookcommand@series{Xendtwolines}[apprefwithpage]
3571   \newhookcommand@series{Xendmorethantwolines}[apprefwithpage]
3572   \newhooktoggle@series{Xendtwolinesbutnotmore}[apprefwithpage]
3573   \newhooktoggle@series{Xendtwolinesonlyinsamepage}[apprefwithpage]
3574   \newhookcommand@series{Xendnotenumfont}
3575   \newhookcommand@series{bhookXendnote}
3576
3577   \newhookcommand@series{boxXendlinenum}%
3578   \newhookcommand@series{boxXendlinenumalign}%
3579
3580   \newhookcommand@series{boxXendstartlinenum}%
3581   \newhookcommand@series{boxXendendlinenum}%
3582
3583   \newhookcommand@series{Xendnotefontsize}
3584   \newhooktoggle@series{Xendlemmadisablefontselection}
3585   \newhookcommand@series{Xendlemmaseparator}
3586   \newhookcommand@series{Xendbeforelemmaseparator}
3587   \newhookcommand@series{Xendafterlemmaseparator}
3588   \newhookcommand@series{Xendinplaceoflemmaseparator}
3589

```

```

3590 \newhooktoggle@series{Xendparagraph}
3591 \newhookcommand@series{Xendafternote}
3592 \newhookcommand@series{Xendsep}
3593 \fi

```

### 34.4 Old commands, kept for backward compatibility

The next commands are kept for backward compatibility, but should not be used anymore.

```

\notenumfont
\notefontsetup 3594 \newcommand*{\notenumfont}{\normalfont}
\ifledplinenum 3595 \newcommand*{\notefontsetup}{\footnotesize}
\symlinenum 3596 \newif\ifledplinenum
3597 \ledplinenumtrue
3598 \newcommand*{\symlinenum}{%

\textbardbl We need to robustify \textbardbl in order to allow it use in \IfStrEq when using
as \symlinenum.
3599 % \robustify{\textbardbl}

```

### 34.5 Hooks for a particular footnote

```

\fulllines@ \fulllines@ toggle is used to print the fulllines references, and not the abbrevi-
ated form defined by \twolines and \morethantwolines.
3600 \newtoggle{fulllines@}%

\nonum@ \nonum@ toggle is used to disable line number printing in a particular footnote.
3601 \newtoggle{nonum@}

\nosep@ \nonum@ toggle is used to disable the lemma separator in a particular footnote.
3602 \newtoggle{nosep@}

\nomk@ \nomk@ toggle is used by eledpar to remove the footnote mark in the text when
using \footnoteXmk. Read eledpar handbook.
3603 \newtoggle{nomk@}%

```

### 34.6 Alias

```

\nolemmaseparator \nolemmaseparator[\langle series \rangle] is just an alias for \lemmaseparator[\langle series \rangle]{%}.
3604 \newcommandx*{\nolemmaseparator}[1][1]{\lemmaseparator[#1]{%}

\interparanoteglue The \ipn@skip skip and \interparanoteglue command are kept for backward
\ipn@skip compatibility, but should not be used anymore.
3605 \newskip\ipn@skip
3606 \newcommand*{\interparanoteglue}[1]{%
3607     {\notefontsetup\global\ipn@skip=#1 \relax}}
3608 \interparanoteglue{1em plus.4em minus.4em}

```

`\parafootftmsep` The `\parafootftmsep` macro is kept for backward compatibility. It is default value of `\parafootsep@series`.

```
3609 \newcommand{\parafootftmsep}{}%
```

## 35 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 previous 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`.

```
3610 \newcommand{\printlinefootnote}[2]{%
3611   \def\extractline@##1|##2|##3|##4|##5|##6|##7|{##2}%
3612   \def\extractsubline@##1|##2|##3|##4|##5|##6|##7|{##3}%
3613   \def\extractendline@##1|##2|##3|##4|##5|##6|##7|{##5}%
3614   \def\extractendsubline@##1|##2|##3|##4|##5|##6|##7|{##6}%
3615   \iftoggle{numberonlyfirstintwolines@#2}{%
3616     \edef\lineinfo@{\extractline@ #1| - \extractsubline@ #1| - \extractendline@ #1| - \extractendsubline@ #1}%
3617   }%
3618   {%
3619     \edef\lineinfo@{\extractline@ #1| - \extractsubline@ #1|}%
3620   }%
3621   \iftoggle{nonum@}{%Try if the line number must printed for this specific not (by default, yes)}{%
3622     \hspace{\csuse{inplaceofnumber@#2}}%
3623   }%
3624   {%
3625     {%
3626       \iftoggle{nonumberinfootnote@#2}%Try if the line number must printed (by default, yes)}{%
3627         {%
3628           \hspace{\csuse{inplaceofnumber@#2}}%
3629         }%
3630       }%
3631       {\iftoggle{numberonlyfirstinline@#2}% If for this series the line number must be printed}{%
3632         {%
3633           \ifcsdef{prevline#2}%
3634             {%Be sure the \prevline exists.
3635             \ifcsequal{prevline#2}{\lineinfo@}%Try it
3636             {%
3637               \IfStrEq{\csuse{symlinenum@#2}}{}%
3638               {%
3639                 \hspace{\csuse{inplaceofnumber@#2}}%
3640               }%
3641             }%
3642             {\hspace{\csuse{before symlinenum@#2}}\csuse{Xnotenumfont@#2}%
3643             \ifdimequal{\csuse{boxsymlinenum@#2}}{0pt}%
3644               {\csuse{symlinenum@#2}}%
3645             }%
3646             {\hbox to \csuse{boxsymlinenum@#2}{\csuse{symlinenum@#2}\hfill}}%
3647             \hspace{\csuse{after symlinenum@#2}}%
3648           }%
3649         }%
3650       }%
3651     }%
3652   }%
3653 }
```

```

3647             {%
3648             \printlinefootnotearea{#1}{#2}%
3649             }%
3650         }%
3651     {%
3652     \printlinefootnotearea{#1}{#2}%
3653     }%
3654 }%
3655 {%
3656 \printlinefootnotearea{#1}{#2}%
3657 }%
3658 \csxdef{prevline#2}{\lineinfo@}%
3659 }%
3660 }%
3661 }%
3662 }%
3663 }

```

**\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.)

```

3664 \newcommand{\printlinefootnotearea}[2]{%
3665 \printbeforenumberinfootnote{#2}%
3666 \csuse{Xnotenumfont@#2}%
3667 \boxfootnotenotenumbers{#1}{#2}%
3668 \printafternumberinfootnote{#2}%
3669 }%

```

**\boxfootnotenotenumbers** 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.

```

3670 \newcommand{\boxfootnotenotenumbers}[2]{%
3671 \ifdimequal{\csuse{boxlinenum@#2}}{0pt}{%
3672 \printlinefootnotenotenumbers{#1}{#2}%
3673 }%
3674 {%
3675 \hbox to \csuse{boxlinenum@#2}%
3676 {%
3677 \IfSubStr{RC}{\csuse{boxlinenumalign@#2}}{\hfill}{}%
3678 \printlinefootnotenotenumbers{#1}{#2}%
3679 \IfSubStr{LC}{\csuse{boxlinenumalign@#2}}{\hfill}{}%
3680 }%
3681 }%
3682 }%

```

**\printlinefootnotenotenumbers** 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.

```

3683 \newcommand{\printlinefootnotenumbers}[2]{%
3684   \xdef\currentseries{#2}%
3685   \ifboolexpr{%
3686     (togl{pstartinfootnote@#2} and bool{numberpstart})%
3687     or togl{pstartinfootnoteeverytime@#2}}%
3688   {\printpstart}{}%
3689   \iftoggle{onlypstartinfootnote@#2}{\printlines#1}{}%
3690 }%

```

`\printbeforenumberinfootnote` This macro prints a space (before the line number) in footnote. It is called by `\printlinefootnotearea`. Its only argument is the series

```

3691 \newcommand{\printbeforenumberinfootnote}[1]{%
3692   \hspace{\csuse{beforenumberinfootnote@#1}}%
3693 }%

```

`\printafternumberinfootnote` 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

```

3694 \newcommand{\printafternumberinfootnote}[1]{%
3695   \iftoggle{nonbreakableafternumber@#1}{\nobreak}{}%
3696   \hspace{\csuse{afternumberinfootnote@#1}}%
3697 }%

```

## 36 Output routine

Now we begin the output routine and associated things.

`\pageno` `\pageno` is a page number, starting at 1, and `\advancepageno` increments the number.

```

3698 \countdef\pageno=0 \pageno=1
3699 \newcommand*{\advancepageno}{\ifnum\pageno<\z@ \global\advance\pageno\m@ne
3700   \else\global\advance\pageno\@ne\fi}
3701

```

The next portion is probably the trickiest part of moving from TeX to L<sup>A</sup>T<sub>E</sub>X. The original code is below, but we need something very different.

This is a new output routine, with changes to handle printing all our footnotes. Those changes have not been added directly, but are in macros that get called here: that should make it easier to see what would need to be taken over to a different output routine. We continue to use the `\pagebody`, `\makeheadline`, `\makefootline`, and `\dosupereject` macros of PLAIN T<sub>E</sub>X; for those macros, and the original version of `\output`, see *The TeXbook*, p. 364.

```

\output{\edmac@output}
\def\edmac@output{\shipout\vbox{\normal@pars
  \vbox{\makeheadline\pagebody\makefootline}}%
}%
\advancepageno

```

```
\ifnum\outputpenalty>-\@MM\else\dosupereject\fi}
```

```
\def\pagecontents{\page@start
\ifvoid\topins\else\unvbox\topins\fi
\dimen@=\dp\@cclv \unvbox\@cclv % open up \box255
\do@feet
\ifr@ggedbottom \kern-\dimen@ \vfil \fi}
```

`\do@feet` ships out all the footnotes. Standard EDMAC has only five feet, but there is nothing in principle to prevent you from creating an arachnoid or centipedal edition; straightforward modifications of EDMAC are all that's required. However, the myriapedal edition is ruled out by eTeX limitations: the number of insertion classes is limited to  $2^{16}$ .

With luck we might only have to change `\@makecol` and `\@reinserts`. The kernel definition of these, and perhaps some other things, is:

```
\gdef \@makecol {%
\ifvoid\footins
\setbox\@outputbox \box\@cclv
\else
\setbox\@outputbox \vbox {%
\boxmaxdepth \@maxdepth
\@tempdima\dp\@cclv
\unvbox \@cclv
\vskip \skip\footins
\color@begingroup
\normalcolor
\footnoterule
\unvbox \footins
\color@endgroup
}%
\fi
\xdef\@freelist{\@freelist\@midlist}%
\global \let \@midlist \empty
\@combinefloats
\ifvbox\@kludgeins
\@makespecialcolbox
\else
\setbox\@outputbox \vbox to\@colht {%
\@texttop
\dimen@ \dp\@outputbox
\unvbox\@outputbox
\vskip -\dimen@
\@textbottom
}%
\fi
\global \maxdepth \@maxdepth
}
```

```

\gdef \@reinserts{%
  \ifvoid\footins\else\insert\footins{\unvbox\footins}\fi
  \ifvbox\@kludgeins\insert\@kludgeins{\unvbox\@kludgeins}\fi
}

```

Now we start actually changing things.

`\m@m@makecolfloats` These macros are defined in the `memoir` class and form part of the definition of `\m@m@makecoltext` `\@makecol`.

```

\m@m@makecolintro 3702 \providecommand{\m@m@makecolfloats}{%
3703   \xdef\@freelist{\@freelist\@midlist}%
3704   \global \let \@midlist \@empty
3705   \@combinefloats}
3706 \providecommand{\m@m@makecoltext}{%
3707   \ifvbox\@kludgeins
3708     \@makespecialcolbox
3709   \else
3710     \setbox\@outputbox \vbox to\@colht {%
3711       \@texttop
3712       \dimen@ \dp\@outputbox
3713       \unvbox\@outputbox
3714       \vskip -\dimen@
3715       \@textbottom}%
3716   \fi}
3717 \providecommand{\m@m@makecolintro}{%
3718

```

`\l@d@makecol` This is a partitioned version of the ‘standard’ `\@makecol`, with the initial code put into another macro.

```

3719 \gdef\l@d@makecol{%
3720   \l@ddofootinsert
3721   \m@m@makecolfloats
3722   \m@m@makecoltext
3723   \global \maxdepth \@maxdepth}
3724

```

`\ifFN@bottom` The `\ifFN@bottom` macro is defined by the `footmisc` package. If this package is not loaded, we define it.

```

3725 \AtBeginDocument{\ifpackageloaded{footmisc}{\newif\ifFN@bottom}}

```

`\l@ddofootinsert` This macro essentially holds the initial portion of the kernel `\@makecol` code.

```

3726 \newcommand*\l@ddofootinsert{%
3727   \ifvoid\footins
3728     \setbox\@outputbox \box\@ccclv
3729   \else
3730     \setbox\@outputbox \vbox {%
3731       \boxmaxdepth \@maxdepth
3732       \@tempdima\dp\@ccclv

```



```

3733      \unvbox \@cclv
3734      \ifFN@bottom\vfill\fi\vskip \skip\footins% If the option bottom of loadmisc package is loaded
3735      \color@begingroup
3736      \normalcolor
3737      \footnoterule
3738      \unvbox \footins
3739      \color@endgroup
3740      }%
3741  \fi

```

That's the end of the copy of the kernel code. We finally call a macro to handle all the additional EDMAC feet.

```

3742  \l@ddoxtrafeet
3743 }
3744

```

`\doxtrafeet` `\doxtrafeet` is the code extending `\@makecol` to cater for the extra `eledmac` feet. We have two classes of extra footnotes. By default, we order the footnote inserts so that the regular footnotes are first, then class 1 (familiar footnotes) and finally class 2 (critical footnotes).

```

3745 \newcommand*{\l@ddoxtrafeet}{%
3746   \IfStrEq{familiar-critical}{\@fnpos}%
3747   {\doxtrafeeti\doxtrafeetii}%
3748   {%
3749     \IfStrEq{critical-familiar}{\@fnpos}%
3750     {\doxtrafeetii\doxtrafeeti}%
3751     {\doxtrafeeti\doxtrafeetii}%
3752   }%
3753 }%
3754

```

`\doxtrafeetii` `\doxtrafeetii` is the code extending `\@makecol` to cater for the extra critical feet (class 2 feet). NOTE: the code is likely to be ‘featurefull’.

```

3755 \newcommand*{\doxtrafeetii}{%
3756   \setbox\@outputbox \vbox{%
3757     \unvbox\@outputbox
3758     \@opxtrafeetii}}

```

`\@opxtrafeetii` The extra critical feet to be added to the output. The normal way to add one `\print@Xnotes` series. `\print@Xnotes` is replaced by `eledpar` when using `\Pages`.

```

3759 \newcommand\print@Xnotes[1]{%
3760   \csuse{#1footstart}{#1}%
3761   \csuse{#1footgroup}{#1}%
3762 }%

```

We print all series of notes by looping on them. We check before printing them that they are not voided.

```

3763 \newcommand*{\@opxtrafeetii}{%
3764   \unless\ifnocritical@%
3765   \gdef\firstXseries@{}%

```

```

3766 \def\do##1{%
3767 \ifvoid\csuse{##1footins}\else%
3768 \global\skip\csuse{##1footins}=\csuse{beforeXnotes@##1}%
3769 \global\advance\skip\csuse{##1footins} by\csuse{afterXrule@##1}%
3770 \print@Xnotes{##1}%
3771 \fi%
3772 }%
3773 \dolistloop{\@series}%
3774 \fi%
3775 }%

```

`\l@ddodoreinextrafeet` `\l@ddodoreinextrafeet` is the code for catering for the extra footnotes within `\@reinserts`. The implementation may well have to change. We use the same classes and ordering as in `\l@ddoxtrafeet`.

```

3776 \newcommand*{\l@ddodoreinextrafeet}{%
3777 \doreinextrafeeti
3778 \doreinextrafeetii}
3779

```

`\doreinextrafeetii` `\doreinextrafeetii` is the code for catering for the class 2 extra critical footnotes within `\@reinserts`. The implementation may well have to change.

```

3780 \newcommand*{\doreinextrafeetii}{%
3781 \unless\ifnocritical@%
3782 \def\do##1{%
3783 \ifvoid\csuse{##1footins}\else%
3784 \insert\csuse{##1footins}{\unvbox\csuse{##1footins}}%
3785 \fi}%
3786 \dolistloop{\@series}
3787 \fi%
3788 }
3789

```

`\l@d@reinserts` And here is the modified version of `\@reinserts`.

```

3790 \gdef \l@d@reinserts{%
3791 \ifvoid\footins\else\insert\footins{\unvbox\footins}\fi
3792 \l@ddodoreinextrafeet
3793 \ifvbox\@kludgeins\insert\@kludgeins{\unvbox\@kludgeins}\fi
3794 }
3795

```

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.)

```

3796 \@ifclassloaded{memoir}{%
memoir is loaded so we use memoir’s built in hooks.
3797 \g@addto@macro{\m@mmdoextrafeet}{\l@ddoxtrafeet}%
3798 \g@addto@macro{\m@mmdodoreinextrafeet}{\l@ddodoreinextrafeet}%
3799 }{%

```

memoir has not been loaded, so redefine @makecol and @reinserts.

```
3800 \gdef\@makecol{\l@d@makecol}%
3801 \gdef\@reinserts{\l@d@reinserts}%
3802 }
3803
```

\addfootins \addfootins is for backward compatibility, but should'nt be used anymore.

```
3804 \newcommand*\addfootins[1]{%
3805   \led@warn@AddfootinsObsolete%
3806   \footnormal{#1}
3807   \g@addto@macro{\opxtrafeetii}{%
3808     \ifvoid\@nameuse{#1footins}\else
3809       \@nameuse{#1footstart{#1}}\@nameuse{#1footgroup}{#1}\fi}
3810   \g@addto@macro{\doreinextrafeetii}{%
3811     \ifvoid\@nameuse{#1footins}\else
3812       \insert\@nameuse{#1footins}{\unvbox\@nameuse{#1footins}}\fi}
3813   \g@addto@macro{\l@d@dedbeginmini}{%
3814     \expandafter\let\csname #1footnote\endcsname = \@nameuse{mp#1footnote}}
3815   \g@addto@macro{\l@d@dedendmini}{%
3816     \ifvoid\@nameuse{mp#1footins}\else\@nameuse{mpfootgroup#1{#1}}\fi}
3817 }
```

It turns out that \@doclearpage also needs modifying.

\if@led@nofoot We have to check if there are any leftover feet. \@led@extranofeet is a hook for  
 \@led@extranofeet handling further footnotes.

```
3818 \newif\if@led@nofoot
3819 \newcommand*\@led@extranofeet{}
3820
3821 \@ifclassloaded{memoir}{%
```

If the memoir class is loaded we hook into its modified \@doclearpage.

```
\@mem@extranofeet
3822 \g@addto@macro{\@mem@extranofeet}{%
3823   \unless\ifnocritical@%
3824     \def\do#1{\ifvoid\csuse{#1footins}\else\@mem@nofootfalse\fi%
3825     \ifvoid\csuse{footins#1}\else\@mem@nofootfalse\fi%
3826     }
3827     \dolistloop{\@series}%
3828     \@led@extranofeet
3829   \fi%
3830 }%
3831 }{%
```

As memoir is not loaded we have to do it all here.

```
\@led@testifnofoot
\@doclearpage 3832 \newcommand*\@led@testifnofoot}{%
3833   \@led@nofoottrue%
```

```

3834 \ifvoid\footins\else%
3835   \@led@nofootfalse%
3836 \fi%
3837 \def\do##1{%
3838   \unless\ifnocritical%
3839     \ifvoid\csuse{##1footins}\else%
3840       \@led@nofootfalse%
3841     \fi%
3842   \fi%
3843   \unless\ifnofamiliar%
3844     \ifvoid\csuse{footins##1}\else%
3845       \@led@nofootfalse%
3846     \fi%
3847   \fi%
3848 }%
3849 \dolistloop{\@series}%
3850 \@led@extranofeet%
3851 }%
3852
3853 \renewcommand{\@docclearpage}{%
3854   \@led@testifnofoot
3855   \if@led@nofoot
3856     \setbox\@tempboxa\vsplit\@ccol to\z@ \unvbox\@tempboxa
3857     \setbox\@tempboxa\box\@ccol
3858     \xdef\@deferlist{\@toplist\@botlist\@deferlist}%
3859     \global \let \@toplist \@empty
3860     \global \let \@botlist \@empty
3861     \global \@colroom \@colht
3862     \ifx \@currlist\@empty
3863     \else
3864       \@latexerr{Float(s) lost}\@ehb
3865       \global \let \@currlist \@empty
3866     \fi
3867     \@makefcolumn\@deferlist
3868     \@whiles\if@fcolmade \fi{\@opcol\@makefcolumn\@deferlist}%
3869     \if@twocolumn
3870       \if@firstcolumn
3871         \xdef\@dbldeferlist{\@dbltoplist\@dbldeferlist}%
3872         \global \let \@dbltoplist \@empty
3873         \global \@colht \textheight
3874         \begingroup
3875           \@dblfloatplacement
3876           \@makefcolumn\@dbldeferlist
3877           \@whiles\if@fcolmade \fi{\@outputpage
3878             \@makefcolumn\@dbldeferlist}%
3879         \endgroup
3880       \else
3881         \vbox{}\clearpage
3882       \fi
3883     \fi

```

```

3884 \else
3885   \setbox\@cclv\vbox{\box\@cclv\vfil}%
3886   \l@makecol\@opcol
3887   \clearpage
3888 \fi}
3889 }
3890

```

## 37 Cross referencing

Peter Wilson has rewritten portions of the code in this section so that the LaTeX `.aux` file is used. This will also handle `\included` files.

Further, I have renamed some of the original EDMAC macros so that they do not clash with the LaTeX label/ref commands (EDMAC and LaTeX use very different mechanisms). In particular, the original EDMAC `\label` and `\pageref` have been renamed as `\edlabel` and `\edpageref` respectively.

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 saying `\edpageref{foo}`, or `\lineref{foo}` or `\sublineref{foo}`. These reference commands will produce, respectively, the page, line and sub-line 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 `\label{foo}`.

`\labelref@list` Set up a new list, `\labelref@list`, to hold the page, line and sub-line numbers for each label.

```

3891 \list@create{\labelref@list}

```

`\zz@@@` A convenience macro to zero two labeling counters in one go.

```

3892 %% \newcommand*{\zz@@@}{000|000|000} % set three counters to zero in one go
3893 \newcommand*{\zz@@@}{000|000} % set two counters to zero in one go
3894

```

`\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 the LaTeX write methods for the `.aux` file.

---

<sup>33</sup>The remaining macros in this section were kindly revised by Wayne Sullivan, who substantially improved their efficiency and flexibility.

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.

```

3895 \newcommand*{\edlabel}[1]{%
3896   \ifl@dpairing\ifautopar%
3897     \strut%
3898   \fi\fi%
3899   \@bsphack%
3900   \ifledRcol%
3901     \write\linenum@outR{\string\@lab}%
3902     \ifx\labelref@listR\empty%
3903       \xdef\label@refs{\zz@@@}%
3904     \else%
3905       \gl@p\labelref@listR\to\label@refs%
3906     \fi%
3907     \ifvmode%
3908       \advancelabel@refs%
3909     \fi%

```

Use code from the kernel `\label` command to write the correct page number (it seems possible that the original EDMAC's `\page@num` scheme might also have had problems in this area). Also define an `hypertarget` if `hyperref` package is loaded.

```

3910   \protected@write\@auxout{%
3911     {\string\l@dmake@labelsR\space\thepage|\label@refs|\the\c@pstartR|{#1}}%
3912     \ifdef{\hypertarget}{\Hy@raisedlink{\hypertarget{#1}}}{}}}%
3913   \else%
3914     \write\linenum@out{\string\@lab}%
3915     \ifx\labelref@list\empty%
3916       \xdef\label@refs{\zz@@@}%
3917     \else%
3918       \gl@p\labelref@list\to\label@refs%
3919     \fi%
3920     \ifvmode%
3921       \advancelabel@refs%
3922     \fi%
3923   \protected@write\@auxout{%
3924     {\string\l@dmake@labelsR\space\thepage|\label@refs|\the\c@pstartR|{#1}}%
3925     \ifdef{\hypertarget}{\Hy@raisedlink{\hypertarget{#1}}}{}}}%
3926   \fi%
3927   \@esphack}%
3928

```

<code>\advancelabel@refs</code> <code>\labelrefsparseline</code> <code>\labelrefsparsesubline</code>	<p>In cases where <code>\edlabel</code> is the first element in a paragraph, we have a problem with line counts, because line counts change only at the first horizontal box of the paragraph. Hence, we need to test <code>\edlabel</code> if it occurs at the start of a paragraph. To do so, we use <code>\ifvmode</code>. If the test is true, we must advance by one unit the amount of text we write into the <code>.aux</code> file. We do so using <code>\advancelabel@refs</code> command.</p>
--	---

---

<sup>34</sup>(jdb43@cam.ac.uk) via the `ctt` thread 'ledmac cross referencing', 25 August 2003.

```

3929 \newcounter{line}%
3930 \newcounter{subline}%
3931 \newcommand{\advancelabel@refs}{%
3932   \setcounter{line}{\expandafter\labelrefsparseline\label@refs}%
3933   \stepcounter{line}%
3934   \ifsublines@%
3935     \setcounter{subline}{\expandafter\labelrefsparsesubline\label@refs}%
3936     \stepcounter{subline}{1}%
3937     \def\label@refs{\theline|\thesubline}%
3938   \else%
3939     \def\label@refs{\theline|0}%
3940   \fi%
3941 }
3942 \def\labelrefsparseline#1|#2{#1}
3943 \def\labelrefsparsesubline#1|#2{#2}

```

**\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).

```

3944 \newcommand*{\l@dmake@labels}{%
3945   \def\l@dmake@labels#1|#2|#3|#4|#5{%
3946     \expandafter\ifx\csname the@label#5\endcsname \relax\else
3947       \led@warn@DuplicateLabel{#5}%
3948     \fi
3949     \expandafter\gdef\csname the@label#5\endcsname{#1|#2|#3|#4}%
3950     \ignorespaces}
3951

```

LaTeX 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.

```

3952 \AtBeginDocument{%
3953   \def\l@dmake@labels#1|#2|#3|#4|#5{%
3954 }
3955

```

**\@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`.

```

3956 \newcommand*{\@lab}{\xright@appenditem
3957   {\linenumrep{\line@num}}|}%

```

```

3958 \ifsublines@ \sublinenumrep{\subline@num}\else 0\fi}\to\labelref@list}
3959

```

`\applabel` `\applabel`, if called in `\edtext` will insert automatically both a start and an end label for the current edtext lines.

```

3960 \newcommand*{\applabel}[1]{%
3961 \ifnum\@edtext@level>0%
    Label should not be already defined.
3962 \ifcsundef{the@label#1}{%
3963 \csdef{the@label#1}{applabel}%
3964 }%
3965 {%
3966 \led@warn@DuplicateLabel{#1 (applabel)}%
3967 }%

```

Parse the edtext line numbers.

```

3968 \expandafter\l@dp@rsefootspec\l@d@nums|%

```

Use the L<sup>A</sup>T<sub>E</sub>X standard hack for label.

```

3969 \@bsphack%

```

And now, write the data in the auxiliary file.

```

3970 \ifledRcol%
3971 \protected@write\@auxout{%
3972 {\string\l@dmake@labelsR\space\l@dparsedstartpage|\l@dparsedstartline|\l@dparsedsta
3973 \ifdef{\hypertarget}{\Hy@raisedlink{\hypertarget{#1:start}}}}}%
3974 \protected@write\@auxout{%
3975 {\string\l@dmake@labelsR\space\l@dparsedendpage|\l@dparsedendline|\l@dparsedendsub
3976 \else%
3977 \protected@write\@auxout{%
3978 {\string\l@dmake@labels\space\l@dparsedstartpage|\l@dparsedstartline|\l@dparsedstar
3979 \ifdef{\hypertarget}{\Hy@raisedlink{\hypertarget{#1:start}}}}}%
3980 \protected@write\@auxout{%
3981 {\string\l@dmake@labels\space\l@dparsedendpage|\l@dparsedendline|\l@dparsedendsub|
3982 \fi%

```

Use the L<sup>A</sup>T<sub>E</sub>X standard hack for label.

```

3983 \@esphack%

```

Warning if `\edlabel` is called outside of edtext.

```

3984 \else%
3985 \led@warn@AppLabelOutEdtext{#1}%
3986 \fi%

```

End of `\applabel`

```

3987 }%

```

`\wrap@edcrossref` `\wrap@edcrossref` is called around all `\eledmac` crossref commands, except those which start with `x`. It adds the hyperlink.

```

3988 \newrobustcmd{\wrap@edcrossref}[2]{%
3989 \ifdef{\hyperlink}%

```



```

3990     {\hyperlink{#1}{#2}}%
3991     {#2}%
3992 }

```

**\edpageref** If the specified label exists, **\edpageref** gives its page number. 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 don't 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. LaTeX already defines a **\pageref**, so changing the name to **\edpageref**.

```

3993 \newcommand*{\edpageref}[1]{\l@dref@undefined{#1}\wrap@edcrossref{#1}{\l@dgetref@num{1}{#1}}}
3994 \newcommand*{\xpageref}[1]{\l@dgetref@num{1}{#1}}
3995

```

**\edlineref** If the specified label exists, **\lineref** gives its line number.

```

\lineref 3996 \newcommand*{\edlineref}[1]{\l@dref@undefined{#1}\wrap@edcrossref{#1}{\l@dgetref@num{2}{#1}}}%
\mlineref 3997 \AtBeginDocument{%
3998     \ifdef\lineref{}\let\lineref\edlineref}%
3999 }%
4000 \newcommand*{\mlineref}[1]{\l@dgetref@num{2}{#1}}%
4001

```

**\sublineref** If the specified label exists, **\sublineref** gives its sub-line number.

```

\sublineref 4002 \newcommand*{\sublineref}[1]{\l@dref@undefined{#1}\wrap@edcrossref{#1}{\l@dgetref@num{3}{#1}}}
4003 \newcommand*{\xsublineref}[1]{\l@dgetref@num{3}{#1}}
4004

```

**\pstarteref** If the specified label exists, **\pstartref** gives its pstart number.

```

\xpstartref 4005 \newcommand*{\pstartref}[1]{\l@dref@undefined{#1}\wrap@edcrossref{#1}{\l@dgetref@num{4}{#1}}}
4006 \newcommand*{\xpstartref}[1]{\l@dgetref@num{4}{#1}}
4007

```

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.

```

4008 \newcommand*{\l@dref@undefined}[1]{%
4009     \expandafter\ifx\csname the@label#1\endcsname\relax
4010     \led@warn@RefUndefined{#1}%
4011     \fi}
4012

```

`\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) or sub-line (3) number. (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.

```

4013 \newcommand*{\l@dgetref@num}[2]{%
4014   \expandafter
4015   \ifx\csname the@label#2\endcsname \relax
4016     000%
4017   \else
4018     \expandafter\expandafter\expandafter
4019     \l@dlabel@parse\csname the@label#2\endcsname|#1%
4020   \fi}
4021

```

`\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, or 3) which defines which of the earlier three numbers to pick out. (It was earlier given as the first argument of `\l@dgetref@num`.)

```

4022 \newcommand*{\l@dlabel@parse}{%
4023 \def\l@dlabel@parse#1|#2|#3|#4|#5{%
4024   \ifcase #5%
4025     \or #1%
4026     \or #2%
4027     \or #3%
4028     \or #4%
4029   \fi}

```

`\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 doesn’t, 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 `\label{elephant}`. The point of this is to be able to manufacture footnote line references to passages which can’t be specified in the normal way as the first argument to `\critext` for one reason or another. Using `\xxref` in the second argument of `\critext` lets you set things up at least semi-automatically.

```

4030 \newcommand*{\xxref}[2]{%
4031   {%
4032     \expandafter\ifx\csname the@label#1\endcsname \relax%
4033       \expandafter\let\csname the@@label#1\endcsname\zz@@@%
4034     \else%
4035       \expandafter\def\csname the@@label#1\endcsname{\l@dgetref@num{1}{#1}|\l@dgetref@num{2}
4036       \fi%
4037     \expandafter\ifx\csname the@label#2\endcsname \relax%

```

```

4038     \expandafter\let\csname the@@label#2\endcsname\zz@@%
4039     \else%
4040     \expandafter\def\csname the@@label#2\endcsname{\l@getref@num{1}{#2}|\l@getref@num{2}{#2}|\l@getref@num{3}{#3}}%
4041     \fi%
4042     \ifdefined\Rlineflag%
4043     \StrDel{\csuse{the@@label#1}}{\Rlineflag}[\@tempa]%
4044     \StrDel{\csuse{the@@label#2}}{\Rlineflag}[\@tempb]%
4045     \else%
4046     \letcs{\@tempa}{the@@label#1}%
4047     \letcs{\@tempb}{the@@label#2}%
4048     \fi%
4049     \linenum{\@tempa}%
4050     \@tempb}}}%
4051

```

`\appref` `\appref` prints a crossref to some lines of the apparatus defined by `\applabel`. It prints the lines as they should be printed in the apparatus.

`\apprefwithpage` prints the lines as they should be printed in the apparatus.

`\apprefprefixsingle` If `\apprefprefixsingle` is not empty, it prints it before the line number. If `\apprefprefixsingle` is not empty, it prints it before the line numbers when the first line is not the same as the last line. `\apprefwithpage` prints a crossref to some lines of the apparatus defined by `\applabel`. It always prints the page number, as it should be printed in the end notes. The `\twolinesappref` and `\morethantwolinesappref` are similar to the footnote hooks and `\twolines` and `\morethantwolines`.

So, first declare the default value of the hooks for the pseudo-series `appref`. Also declare the internal toggle which are switch by `eledmac`.

```

4052 \xdef\twolines@appref{}%
4053 \xdef\morethantwolines@appref{}%
4054 \newtoggle{twolinesbutnotmore@appref}%
4055 \newtoggle{twolinesonlyinsamepage@appref}%
4056
4057 \xdef\Xendtwolines@apprefwithpage{}%
4058 \xdef\Xendmorethantwolines@apprefwithpage{}%
4059 \newtoggle{Xendtwolinesbutnotmore@apprefwithpage}%
4060 \newtoggle{Xendtwolinesonlyinsamepage@apprefwithpage}%
4061

```

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.

```

4062
4063 \xdef\boxstartlinenum@appref{Opt}
4064 \xdef\boxendlinenum@appref{Opt}
4065
4066 \xdef\boxXendstartlinenum@apprefwithpage{Opt}
4067 \xdef\boxXendendlinenum@apprefwithpage{Opt}
4068

```

Now, declare the default value of `\apprefprefixsingle` and `\apprefprefixmore`.

```

4069 \newcommand\apprefprefixsingle{%
4070 \newcommand\apprefprefixmore{%
4071

```

And now, the main commands: `\appref` and `\apprefwithpage`. These commands call `\printlines` and `\printendlines`. That is why we have previously declared all hooks values tested inside these last commands.

```

4072 \newcommandx{\appref}[2][1,usedefault]{%
4073   \IfStrEq{#1}{fulllines}%
4074   {\toggletrue{fulllines@}}%
4075   }%
4076 \xdef\@currentseries{appref}%
4077 \ifdefempty{\apprefprefixmore}%
4078   {\apprefprefixsingle}%
4079   {%
4080     \IfEq{\xlineref{#2:start}}{\xlineref{#2:end}}%
4081     {\apprefprefixsingle}%
4082     {\apprefprefixmore}%
4083   }%
4084 \printlines\xpageref{#2:start}|\xlineref{#2:start}|\xsublineref{#2:start}|\xpageref{#2:en
4085 \togglefalse{fulllines@}%
4086 }%
4087
4088 % \changes{v1.23.0}{2015/05/18}{Debug \cs{Xendtwolines}, \cs{Xendmoreethantwolines}, \cs{Xen
4089 \newcommandx{\apprefwithpage}[2][1,usedefault]{%
4090   \IfStrEq{#1}{fulllines}%
4091   {\toggletrue{fulllines@}}%
4092   }%
4093 \xdef\@currentseries{apprefwithpage}%
4094 \printendlines\xpageref{#2:start}|\xlineref{#2:start}|\xsublineref{#2:start}|\xpageref{#
4095 \togglefalse{fulllines@}%
4096 }%

```

`\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 say `'\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, followed by a page and a line number(s) as arguments. LaTeX defines a `\makelabel` macro which is used in lists. I've changed the name to `\edmakelabel`.

```

4097 \newcommand*{\edmakelabel}[2]{\expandafter\xdef\csname the@label#1\endcsname{#2}}
4098

```

(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 22.3 p. 97 and 21.3 p. 72), since `\xxref` makes a call to `\linenum` in order to do its work.)

## 38 Side notes

Regular `\marginpars` do not work inside numbered text — they don't produce any note but do put an extra unnumbered blank line into the text.

`\l@dold@xympar` Changing `\@xympar` a little at least ensures that `\marginpars` in numbered text  
`\@xympar` do not disturb the flow.

```
4099 \let\l@dold@xympar\@xympar
4100 \renewcommand{\@xympar}{%
4101   \ifnumberedpar@
4102     \led@warn@NoMarginpars
4103     \esphack
4104   \else
4105     \l@dold@xympar
4106   \fi}
4107
```

We provide side notes as replacement for `\marginpar` in numbered text.

`\sidenote@margin` These are the sidenote equivalents to `\line@margin` and `\linenummargin` for  
`\sidenotemargin` specifying which margin. The default is the right margin (opposite to the default  
`\l@dgetsidenote@margin` for line numbers). `\l@dgetsidenote@margin` returns the number associated to  
side note margin:

**left** : 0

**right** : 1

**outer** : 2

**inner** : 3

```
4108 \newcount\sidenote@margin
4109 \newcommand*{\sidenotemargin}[1]{%
4110   \l@dgetsidenote@margin{#1}%
4111   \ifnum\@l@tempcntb>\m@ne
4112     \ifledRcol
4113       \global\sidenote@marginR=\@l@tempcntb
4114     \else
4115       \global\sidenote@margin=\@l@tempcntb
4116     \fi
4117   \fi}}
4118 \newcommand*{\l@dgetsidenote@margin}[1]{%
4119   \def\@tempa{#1}\def\@tempb{left}%
4120   \ifx\@tempa\@tempb
4121     \@l@tempcntb \z@
4122   \else
4123     \def\@tempb{right}%
4124     \ifx\@tempa\@tempb
4125       \@l@tempcntb \@ne
```

```

4126 \else
4127 \def\@tempb{outer}%
4128 \ifx\@tempa\@tempb
4129 \l@dttempcntb \tw@
4130 \else
4131 \def\@tempb{inner}%
4132 \ifx\@tempa\@tempb
4133 \l@dttempcntb \thr@@
4134 \else
4135 \led@warn@BadSidenotemargin
4136 \l@dttempcntb \m@ne
4137 \fi
4138 \fi
4139 \fi
4140 \fi}
4141 \sidenotemargin{right}
4142

```

\l@dlp@rbox We need two boxes to store sidenote texts.

```

\l@drp@rbox 4143 \newbox\l@dlp@rbox
4144 \newbox\l@drp@rbox
4145

```

\ledlsnotewidth These specify the width of the left/right boxes (initialised to \marginparwidth,  
\ledrsnotewidth their distance from the text (initialised to \linenumsep, and the fonts used.

```

\ledlsnotesep 4146 \newdimen\ledlsnotewidth \ledlsnotewidth=\marginparwidth
\ledrsnotesep 4147 \newdimen\ledrsnotewidth \ledrsnotewidth=\marginparwidth
\ledlsnotefontsetup 4148 \newdimen\ledlsnotesep \ledlsnotesep=\linenumsep
\ledrsnotefontsetup 4149 \newdimen\ledrsnotesep \ledrsnotesep=\linenumsep
4150 \newcommand*{\ledlsnotefontsetup}{\raggedleft\footnotesize}
4151 \newcommand*{\ledrsnotefontsetup}{\raggedright\footnotesize}
4152

```

\ledleftnote \ledleftnote, \ledrightnote, \ledinnernote, \ledouternote are the user  
\ledrightnote commands for left, right, inner and outer sidenotes. The two last one are just  
\ledinnernote alias for the two first one, depending of the page number. \ledsidenote{<text>  
\ledouterote is the command for a moveable sidenote.

```

\ledsidenote 4153 \newcommand*{\ledleftnote}[1]{\edtext{\l@dlsnote{#1}}}
4154 \newcommand*{\ledrightnote}[1]{\edtext{\l@drsnote{#1}}}
4155
4156 \newcommand*{\ledinnernote}[1]{%
4157 \ifodd\c@page% Do not use \page@num, because it is not yet calculated when command is called
4158 \ledleftnote{#1}%
4159 \else%
4160 \ledrightnote{#1}%
4161 \fi%
4162 }
4163
4164 \newcommand*{\ledouternote}[1]{%

```

```

4165 \ifodd\c@page% Do not use \page@num, because it is not yet calculated when command is called
4166 \ledrightnote{#1}%
4167 \else%
4168 \ledleftnote{#1}%
4169 \fi%
4170 }
4171
4172 \newcommand*{\ledsidenote}[1]{\edtext{}{\l@dcnote{#1}}}

```

`\l@dlsnote` . The ‘footnotes’ for left, right, and moveable sidenotes. The whole scheme is  
`\l@drsnote` reminiscent of the critical footnotes code.

```

\l@dcnote 4173 \newif\ifrightnoteup
4174 \rightnoteuptrue
4175
4176 \newcommand*{\l@dlsnote}[1]{%
4177 \begingroup%
4178 \newcommand{\content}{#1}%
4179 \ifnumberedpar@
4180 \ifledRcol%
4181 \xright@appenditem{\noexpand\l@dlsnote{\expandonce\content}}%
4182 \to\inserts@listR
4183 \global\advance\insert@countR \@ne%
4184 \else%
4185 \xright@appenditem{\noexpand\l@dlsnote{\expandonce\content}}%
4186 \to\inserts@list
4187 \global\advance\insert@count \@ne%
4188 \fi
4189 \fi\ignorespaces\endgroup}
4190
4191 \newcommand*{\l@drsnote}[1]{%
4192 \begingroup%
4193 \newcommand{\content}{#1}%
4194 \ifnumberedpar@
4195 \ifledRcol%
4196 \xright@appenditem{\noexpand\l@drsnote{\expandonce\content}}%
4197 \to\inserts@listR
4198 \global\advance\insert@countR \@ne%
4199 \else%
4200 \xright@appenditem{\noexpand\l@drsnote{\expandonce\content}}%
4201 \to\inserts@list
4202 \global\advance\insert@count \@ne%
4203 \fi
4204 \fi\ignorespaces\endgroup}
4205
4206 \newcommand*{\l@dcnote}[1]{%
4207 \begingroup%
4208 \newcommand{\content}{#1}%
4209 \ifnumberedpar@
4210 \ifledRcol%
4211 \xright@appenditem{\noexpand\l@dcnote{\expandonce\content}}%

```

```

4212             \to\inserts@listR
4213     \global\advance\insert@countR \@ne%
4214     \else%
4215     \xright@appenditem{\noexpand\l@dcsnote{\expandonce\content}}}%
4216             \to\inserts@list
4217     \global\advance\insert@count \@ne%
4218     \fi
4219 \fi\ignorespaces\endgroup}
4220

```

`\vl@dlsnote` Put the left/right text into boxes, but just save the moveable text. `\l@dcsnotetext`, `\vl@drsnote` `\l@dcsnotetext@l` and `\l@dcsnotetext@r` are etoolbox 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@dcsnotetext` in any cases.
- Store the content of `\rightsidenote` to:
  - `\l@dcsnotetext` if `\ledsidenote` is to be put on right.
  - `\l@dcsnotetext@r` if `\ledsidenote` is to be put on left.
- Store the content of `\leftsidenote` to:
  - `\l@dcsnotetext` if `\ledsidenote` is to be put on left.
  - `\l@dcsnotetext@l` if `\ledsidenote` is to be put on right.

```

4221 \newcommand*{\vl@dlsnote}[1]{%
4222   \ifledRcol%
4223     \@l@tempcntb=\sidenote@marginR%
4224     \ifnum\@l@tempcntb>\@ne%
4225       \advance\@l@tempcntb by\page@numR%
4226     \fi%
4227   \else%
4228     \@l@tempcntb=\sidenote@margin%
4229     \ifnum\@l@tempcntb>\@ne%
4230       \advance\@l@tempcntb by\page@num%
4231     \fi%
4232   \fi%
4233   \ifodd\@l@tempcntb%
4234     \listgadd{\l@dcsnotetext@l}{#1}%
4235   \else%
4236     \listgadd{\l@dcsnotetext}{#1}%
4237   \fi
4238 }
4239 \newcommand*{\vl@drsnote}[1]{%
4240   \ifledRcol%
4241     \@l@tempcntb=\sidenote@marginR%
4242     \ifnum\@l@tempcntb>\@ne%

```



```

4243     \advance\@l@dttempcntb by\page@numR%
4244     \fi%
4245   \else%
4246     \@l@dttempcntb=\sidenote@margin%
4247     \ifnum\@l@dttempcntb>\@ne%
4248       \advance\@l@dttempcntb by\page@num%
4249     \fi%
4250   \fi%
4251   \ifodd\@l@dttempcntb%
4252     \listgadd{\l@dcstetext}{#1}%
4253   \else%
4254     \listgadd{\l@dcstetext@r}{#1}%
4255   \fi%
4256 }
4257 \newcommand*{\vl@dcstetext}[1]{\listgadd{\l@dcstetext}{#1}}
4258

```

`\setl@dlp@rbox` `\setl@dlp@rbox{<lednums>}{<tag>}{<text>}` puts `<text>` into the `\l@dlp@rbox` box.  
`\setl@drpr@rbox` And similarly for the right side box. It is these boxes that finally get displayed in the margins.

```

4259 \newcommand*{\setl@dlp@rbox}[1]{%
4260   {\parindent\z@\hspace=\ledl@notewidth\ledl@notefontsetup
4261     \global\setbox\l@dlp@rbox
4262     \ifleftnoteup
4263       =\vbox to\z@{\vss #1}%
4264     \else
4265       =\vbox to 0.70\baselineskip{\strut#1\vss}%
4266     \fi}}
4267 \newcommand*{\setl@drp@rbox}[1]{%
4268   {\parindent\z@\hspace=\ledr@notewidth\ledr@notefontsetup
4269     \global\setbox\l@drp@rbox
4270     \ifrighnoteup
4271       =\vbox to\z@{\vss#1}%
4272     \else
4273       =\vbox to0.7\baselineskip{\strut#1\vss}%
4274     \fi}}
4275 \newif\ifleftnoteup
4276 \leftnoteuptrue

```

`\sidenotesep` This macro is used to separate sidenotes of the same line.

```

4277 \newcommand{\sidenotesep}{, }

```

`\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's the result that we put on the sidenote.

```

4278 \newcommand*{\affixside@note}{%
4279   \def\sidenotecontent@{}%

```

```

4280 \numgdef{\itemcount@}{0}%
4281 \def\do##1{%
4282   \ifnumequal{\itemcount@}{0}%
4283     {%
4284       \appto\sidenotecontent@{##1}}% Not print not separator before the 1st note
4285     {\appto\sidenotecontent@{\sidenotesep ##1}%
4286     }%
4287     \numgdef{\itemcount@}{\itemcount@+1}%
4288   }%
4289   \dolistloop{\l@dcstetext}%
4290   \ifnumgreater{\itemcount@}{1}{\led@err@ManySidenotes}{}%

```

And we do the same for left and right notes (not movable).

```

4291 \gdef\@templ@d{%
4292 \gdef\@templ@n{\l@dcstetext\l@dcstetext@l\l@dcstetext@r}%
4293 \ifx\@templ@d\@templ@n \else%
4294   \if@twocolumn%
4295     \if@firstcolumn%
4296       \setl@dlp@rbox{##1}{\sidenotecontent@}%
4297     \else%
4298       \setl@drp@rbox{\sidenotecontent@}%
4299     \fi%
4300   \else%
4301     \l@dttempcntb=\sidenote@margin%
4302     \ifnum\l@dttempcntb>\@ne%
4303       \advance\l@dttempcntb by\page@num%
4304     \fi%
4305     \ifodd\l@dttempcntb%
4306       \setl@drp@rbox{\sidenotecontent@}%
4307       \gdef\sidenotecontent@{}%
4308       \numgdef{\itemcount@}{0}%
4309       \dolistloop{\l@dcstetext@l}%
4310       \ifnumgreater{\itemcount@}{1}{\led@err@ManyLeftnotes}{}%
4311       \setl@dlp@rbox{\sidenotecontent@}%
4312     \else%
4313       \setl@dlp@rbox{\sidenotecontent@}%
4314       \gdef\sidenotecontent@{}%
4315       \numgdef{\itemcount@}{0}%
4316       \dolistloop{\l@dcstetext@r}%
4317       \ifnumgreater{\itemcount@}{1}{\led@err@ManyRightnotes}{}%
4318       \setl@drp@rbox{\sidenotecontent@}%
4319     \fi%
4320   \fi%
4321 \fi%
4322 }

```

## 39 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 `\@iiminipage` and `\endminipage` macros. We'll arrange this so that additional series can be easily added.

`\l@dfetbeginmini` These will be the hooks in `\@iiminipage` and `\endminipage` They can be extended  
`\l@dfetendmini` to handle other things if necessary.

```

4323 \ifnoledgroup@{\else%
4324 \newcommand*{\l@dfetbeginmini}{\l@dedbeginmini\l@dfambeginmini}
4325 \newcommand*{\l@dfetendmini}{%
4326   \IfStrEq{critical-familiar}{\@mpfnpos}%
4327   {\l@dedendmini\l@dfamendmini}%
4328   {%
4329     \IfStrEq{familiar-critical}{\@mpfnpos}%
4330     {\l@dfamendmini\l@dedendmini}%
4331     {\l@dedendmini\l@dfamendmini}%
4332   }%
4333 }%
```

`\l@dedbeginmini` These handle the initiation and closure of critical footnotes in a minipage envi-  
`\l@dedendmini` ronment.

```

4334 \newcommand*{\l@dedbeginmini}{%
4335   \unless\ifnocritical@%
4336   \def\do##1{\csletcs{v##1footnote}{mpv##1footnote}}%
4337   \dolistloop{\@series}%
4338   \fi%
4339 }
4340 \newcommand*{\l@dedendmini}{%
4341   \unless\ifnocritical@%
4342   \ifl@dpairing%
4343     \ifledRcol%
4344       \flush@notesR%
4345     \else%
4346       \flush@notes%
4347     \fi%
4348   \fi
4349   \def\do##1{%
4350     \ifvoid\csuse{mp##1footins}\else%
4351     \ifl@dpairing\ifparledgroup%
4352       \ifledRcol%
4353       \dingdef{\parledgroup@beforenotesR}{\parledgroup@beforenotesR+\skip\@nameuse{mp##1footins}}%
4354       \else%
4355       \dingdef{\parledgroup@beforenotesL}{\parledgroup@beforenotesL+\skip\@nameuse{mp##1footins}}%
4356       \fi%
4357     \fi\fi%
4358     \csuse{mp##1footgroup}{##1}%
```

```

4359     \fi}%
4360     \dolistloop{\@series}%
4361     \fi%
4362 }%
4363

```

`\l@dfambeginmini` These handle the initiation and closure of familiar footnotes in a minipage environment.  
`\l@dfamendmini`

```

4364 \newcommand*\l@dfambeginmini{%
4365   \unless\ifnofamiliar%
4366     \def\do##1{\csletcs{vfootnote##1}{mpvfootnote##1}}%
4367     \dolistloop{\@series}%
4368   \fi%
4369 }%
4370
4371 \newcommand*\l@dfamendmini{%
4372   \unless\ifnofamiliar%
4373     \def\do##1{\ifvoid\csuse{mpfootins##1}\else\csuse{mpfootgroup##1}{##1}\fi}%
4374     \dolistloop{\@series}%
4375   \fi%
4376 }%

```

`\@iiiminipage` This is our extended form of the kernel `\@iiiminipage` defined in `ltboxes.dtx`.

```

4377 \def\@iiiminipage#1#2[#3]#4{%
4378   \leavevmode
4379   \@pboxswfalse
4380   \setlength\@tempdima{#4}%
4381   \def\@mpargs{{#1}{#2}[#3]{#4}}%
4382   \setbox\@tempboxa\vbox\bgroup
4383     \color@begingroup
4384     \hsize\@tempdima
4385     \textwidth\hsize \columnwidth\hsize
4386     \@parboxrestore
4387     \def\@mpfn{mpfootnote}\def\thempfn{\thempfootnote}\c@mpfootnote\z@
4388     \let\@footnotetext\@mpfootnotetext

```

The next line is our addition to the original.

```

4389     \l@dfeetbeginmini%           added
4390     \let\@listdepth\@mplistdepth \@mplistdepth\z@
4391     \@minipagerestore
4392     \@setminipage}
4393

```

`\endminipage` This is our extended form of the kernel `\endminipage` defined in `ltboxes.dtx`.

```

4394 \def\endminipage{%
4395   \par
4396   \unskip
4397   \ifvoid\@mpfootins\else
4398     \l@dunboxmpfoot

```

```

4399 \fi
    The next line is our addition to the original.
4400 \l@dfeetendmini%                added
4401 \@minipagefalse
4402 \color@endgroup
4403 \egroup
4404 \expandafter\@iiiparbox\@mpargs{\unvbox\@tempboxa}}
4405

```

`\l@dunboxmpfoot`

```

4406 \newcommand*\l@dunboxmpfoot}{%
4407     \vskip\skip\@mpfootins
4408     \normalcolor
4409     \footnoterule
4410     \ifparledgroup
4411         \ifl@dpairing
4412             \ifledRcol
4413                 \dingdef{\parledgroup@beforenotesR}{\parledgroup@beforenotesR+\skip\@mpfootins}
4414             \else
4415                 \dingdef{\parledgroup@beforenotesL}{\parledgroup@beforenotesL+\skip\@mpfootins}
4416             \fi
4417         \fi
4418     \fi
4419     \unvbox\@mpfootins}
4420

```

`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.

```

4421 \newenvironment{ledgroup}{%
4422     \resetprevpage@num%
4423     \def\@mpfn{mpfootnote}\def\thempfn{\thempfootnote}\c@mpfootnote\z@%
4424     \let\@footnotetext\@mpfootnotetext
4425     \l@dfeetbeginmini%
4426 }{%
4427     \par
4428     \unskip
4429     \ifvoid\@mpfootins\else
4430         \l@dunboxmpfoot
4431     \fi
4432     \l@dfeetendmini%
4433 }
4434

```

`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.

```

4435 \newenvironment{ledgroupsize}[2][1]{%
    Set the various text measures.
4436 \hsize #2\relax
4437 %% \textwidth #2\relax
4438 %% \columnwidth #2\relax
    Initialize fills for centering.
4439 \let\ledllfill\hfil
4440 \let\ledrlfill\hfil
4441 \def\@tempa{#1}\def\@tempb{1}%
    Left adjusted numbered lines
4442 \ifx\@tempa\@tempb
4443 \let\ledllfill\relax
4444 \else
4445 \def\@tempb{r}%
4446 \ifx\@tempa\@tempb
    Right adjusted numbered lines
4447 \let\ledrlfill\relax
4448 \fi
4449 \fi
    Set up the footnoting.
4450 \def\@mpfn{mpfootnote}\def\thempfn{\thempfootnote}\c@mpfootnote\z@
4451 \let\@footnotetext\@mpfootnotetext
4452 \l@dfetbeginmini%
4453 }{%
4454 \par
4455 \unskip
4456 \ifvoid\@mpfootins\else
4457 \l@dunboxmpfoot
4458 \fi
4459 \l@dfetendmini%
4460 }
4461
    Close the \ifnoledgroup@\else.
4462 \fi%

```

\ifledgroupnotesL@ These boolean tests check if we are in the notes of a ledgroup. If we are, we don't  
 \ifledgroupnotesR@ number the lines.

```

4463 \newif\ifledgroupnotesL@
4464 \newif\ifledgroupnotesR@

```

## 40 Indexing

Here's some code for indexing using page & line numbers.

First, ensure that imakeidx or indextools is loaded *before* eledmac.

```

4465 \AtBeginDocument{%
4466   \unless\ifl@imakeidx%
4467     \@ifpackageloaded{imakeidx}{\led@error@ImakeidxAfterEledmac}{}%
4468   \fi%
4469   \unless\ifl@indextools%
4470     \@ifpackageloaded{indextools}{\led@error@indextoolsAfterEledmac}{}%
4471   \fi%
4472 }

```

`\pagelinesep` In order to get a correct line number we have to use the label/ref mechanism.  
`\edindexlab` These macros are for that.

```

\c@labidx 4473 \newcommand{\pagelinesep}{-}
4474 \newcommand{\edindexlab}{\&\&}
4475 \newcounter{labidx}
4476 \setcounter{labidx}{0}
4477

```

`\doedindexlabel` This macro sets an `\edlabel`.

```

4478 \newcommand{\doedindexlabel}{\stepcounter{labidx}%
4479   \edlabel{\edindexlab\thelabidx}}
4480

```

`\thepageline` This macro makes up the page/line number combo from the label/ref.

```

4481 \newcommand{\thepageline}{%
4482   \thepage\pagelinesep\xlineref{\edindexlab\thelabidx}}

```

`\thestartpageline` These macros make up the page/line start/end number when the `\edindex` com-  
`\theendpageline` mand is called in critical notes.

```

4483 \newcommand{\thestartpageline}{\l@dparsedstartpage\pagelinesep\l@dparsedstartline}
4484 \newcommand{\theendpageline}{\l@dparsedendpage\pagelinesep\l@dparsedendline}

```

`\if@edindex@fornote@true` This boolean test is switching at the beginning of each critical note, to allow indexing in this note.

```

4485 \newif\if@edindex@fornote@

```

`\prepare@edindex@fornote` This macro is called at the beginning of each critical note. It switches some parameters, to allow indexing in this note, with reference to page and line number. It also defines `\@ledinnote@command` which will be printed as an encapsulating command after the |.

```

4486 \newcommand{\prepare@edindex@fornote}[1]{%
4487   \l@dp@rsefootspec#1|}%
4488   \@edindex@fornote@true%
4489 }

```

`\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.

```

4490 \newcommand{\get@edindex@ledinnote@command}{%
4491   \ifxindy%
4492     \gdef\@ledinnote@command{%
4493       ledinnote\thelabidx%
4494     }%
4495     \ifxindyhyperref%
4496       \immediate\write\eledmac@xindy@out{%
4497         (define-attributes ("ledinnote\thelabidx"))^^J
4498         \space\space(markup-locref^^J
4499         \eledmacmarkuplocrefdepth^^J
4500         :open "\string\ledinnote[\edindexlab\thelabidx]{\@index@command}{^^J
4501         :close "}"^^J
4502         :attr "ledinnote\thelabidx"^^J
4503       )
4504     }%
4505   \else%
4506     \immediate\write\eledmac@xindy@out{%
4507       (define-attributes ("ledinnote\thelabidx"))^^J
4508       \space\space(markup-locref^^J
4509       \eledmacmarkuplocrefdepth^^J
4510       :open "\string\ledinnote{\@index@command}{^^J
4511       :close "}"^^J
4512       :attr "ledinnote\thelabidx"^^J
4513     )
4514   }%
4515 \fi%

```

If we do not use xindy option, \@ledinnote@command will produce something like ledinnote{formattingcommand}.

```

4516 \else%
4517   \gdef\@ledinnote@command{%
4518     ledinnote[\edindexlab\thelabidx]{\@index@command}%
4519   }%
4520 \fi%
4521 }

```

**\get@index@command** This macro is used to analyse if a text to be indexed has a command after a |.

```

4522 \def\get@index@command#1|#2+{%
4523   \gdef\@index@txt{#1}%
4524   \gdef\@index@command{#2}%
4525   \xdef\@index@parenthesis{}%
4526   \IfBeginWith{\@index@command}{({}%
4527     \StrGobbleLeft{\@index@command}{1}[\@index@command@]%
4528     \global\let\@index@command\@index@command@%
4529     \xdef\@index@parenthesis{({}%
4530   )}%
4531   \IfBeginWith{\@index@command}{)}{%
4532     \StrGobbleLeft{\@index@command}{1}[\@index@command@]%

```



```

4533 \global\let\@index@command\@index@command@%
4534 \xdef\@index@parenthesis{}}%
4535 }{}%
4536 }

```

`\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.

```

4537 \newcommandx{\ledinnote}[3][1,usedefault]{%
4538 \ifboolexpr{%
4539 test{\ifdefequal{\iftrue}{\ifHy@hyperindex}}}%
4540 or%
4541 bool {xindyhyperref@}%
4542 }%
4543 {%
4544 \csuse{#2}{\hyperlink{#1}{\ledinnotemark{#3}}}%
4545 }%
4546 {%
4547 \csuse{#2}{\ledinnotemark{#3}}%
4548 }%
4549 }%
4550 \newcommand{\ledinnotehyperpage}[2]{\csuse{#1}{\ledinnotemark{\hyperpage{#2}}}}%
4551 \newcommand{\ledinnotemark}[1]{#1\emph{n}}%

```

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` 40.1 *Memoir compatibility*

`\create@edindex@for@memoir` `\create@edindex@for@memoir` define the `\edindex` command and related tool when:

1. Memoir class is used.
2. AND `imakeidx` is not used.
3. AND `indextools` is not used.

Need to add the definition of `\edindex` to `\makeindex`, and initialise `\edindex` to do nothing. In this case `\edindex` has an optional argument. We use the hook provided in memoir v1.61.

```

4552 \def\create@edindex@for@memoir{
4553 \g@addto@macro{\makememindexhook}{%
4554 \def\edindex{\@bsphack%
4555 \ifnextchar [{\l@d@index}{\l@d@index[\jobname]}}%
4556 \newcommand{\edindex}[2][\jobname]{\@bsphack\@esphack}

```

`\l@d@index` `\l@d@index[file]` is the first stage of `\edindex`, handling the `idx` file. This is a virtually a verbatim copy of memoir's `\@index`, the change being calling `\l@dwrindexm@m` instead of `\@wrindexm@m`.

```

4557 \def\l@d@index[##1]{%
4558   \ifundefined{##1@idxfile}%
4559   {\ifreportnoidxfile
4560     \led@warn@NoIndexFile{##1}%
4561     \fi
4562     \begingroup
4563     \@sanitize
4564     \@nowrindex}%
4565   {\def\@idxfile{##1}%
4566     \doedindexlabel
4567     \begingroup
4568     \@sanitize
4569     \l@d@wrindexm@m}}

```

`\l@d@wrindexm@m` `\l@d@wrindexm@m{item}` writes the `idx` file name and the indexed item to the `aux` file. These are almost verbatim copies of memoir's `\@wrindexm@m` and `\@@wrindexhyp`.

```

4570 \newcommand{\l@d@wrindexm@m}[1]{\l@d@wrindexhyp##1||\}
4571 \def\l@d@wrindexhyp##1|##2|##3\{%
4572   \ifshowindexmark\@showidx{##1}\fi
4573   \ifx\##2\%
4574     \if@edindex@fornote%
4575       \protected@write\@auxout{%
4576         {\string\@wrindexm@m{\@idxfile}{##1}(\ledinnotehyperpage){\thestartpageline}}%
4577         \protected@write\@auxout{%
4578           {\string\@wrindexm@m{\@idxfile}{##1})ledinnotehyperpage}{\theendpageline}}%
4579         \else%
4580           \protected@write\@auxout{%
4581             {\string\@wrindexm@m{\@idxfile}{##1}hyperpage}{\thepageline}}%
4582           \fi%
4583     \else
4584       \def\Hy@temp@A{##2}%
4585       \ifx\Hy@temp@A\HyInd@ParenLeft
4586         \if@edindex@fornote%
4587           \protected@write\@auxout{%
4588             {\string\@wrindexm@m{\@idxfile}{##1}(\ledinnotehyperpage{##2}){\thestartpageline}}%
4589             \protected@write\@auxout{%
4590               {\string\@wrindexm@m{\@idxfile}{##1})ledinnotehyperpage{##2}}{\theendpageline}}%
4591             \else%
4592               \protected@write\@auxout{%
4593                 {\string\@wrindexm@m{\@idxfile}{##1}##2hyperpage}{\thepageline}}%
4594               \fi%
4595           \else
4596             \if@edindex@fornote%
4597               \protected@write\@auxout{%
4598                 {\string\@wrindexm@m{\@idxfile}{##1}(\ledinnote{##2}){\thestartpageline}}%

```

```

4599         \protected@write\@auxout{}%
4600         {\string\@wrindexm{\@idxfile}{##1})ledinnote{##2}}{\theendpageline}}%
4601         \else%
4602         \protected@write\@auxout{}%
4603         {\string\@wrindexm{\@idxfile}{##1|##2}}{\thepageline}}%
4604         \fi%
4605     \fi
4606 \fi
4607 \endgroup
4608 \@esphack}

```

This finishes the memoir-specific code.

```
4609 }
```

## 40.2 Normal setting

`\create@edindex@notfor@memoir` `\create@edindex@notfor@memoir` define the `\edindex` command and related tool when:

1. Memoir class is NOT used.
2. OR `imakeidx` is used.
3. OR `indextools` is used.

```
4610 \def\create@edindex@notfor@memoir{
```

`\@wredindex` Write the index information to the `idx` file.

```

4611 \newcommand{\@wredindex}[2][1=\expandonce\jobname,usedefault]{%#1 = the index name, #2 = the text
4612     \global\let\old@Rlineflag\Rlineflag%
4613     \gdef\Rlineflag{}%
4614     \ifl@imakeidx%
4615         \if@edindex@fornote%
4616         \IfSubStr[1]{##2}{|}{\get@index@command##2+}{\get@index@command##2|+}%
4617         \get@edindex@ledinnote@command%
4618         \expandafter\imki@wrindexentry{##1}{\@index@txt|(\@ledinnote@command)}{\thestartpageline}%
4619         \expandafter\imki@wrindexentry{##1}{\@index@txt|)\@ledinnote@command}{\theendpageline}%
4620         \else%
4621         \get@edindex@hyperref{##2}%
4622         \imki@wrindexentry{##1}{\@index@txt\@edindex@hyperref}{\thepageline}%
4623         \fi%
4624     \else%
4625         \if@edindex@fornote%
4626         \IfSubStr[1]{##2}{|}{\get@index@command##2+}{\get@index@command##2|+}%
4627         \get@edindex@ledinnote@command%
4628         \expandafter\protected@write\@indexfile{}%
4629         {\string\indexentry{\@index@txt|(\@ledinnote@command)}{\thestartpageline}
4630         }%
4631         \expandafter\protected@write\@indexfile{}%
4632         {\string\indexentry{\@index@txt|)\@ledinnote@command}{\theendpageline}}

```

```

4633     }%
4634     \else%
4635         \protected@write\@indexfile{}%
4636             {\string\indexentry{##2}{\thepage\line}
4637             }%
4638     \fi%
4639 \fi%
4640 \endgroup
4641 \global\let\Rlineflag\old@Rlineflag%
4642 \@esphack}

```

Need to add the definition of `\edindex` to `\makeindex`, and initialise `\edindex` to do nothing.

```

4643 \pretocmd{\makeindex}{%
4644     \def\edindex{\@bsphack
4645         \doedindexlabel
4646         \begingroup
4647         \@sanitize
4648         \@wredindex}}{}{}
4649 \newcommand{\edindex}[1]{\@bsphack\@esphack}
4650 % That finishes the non-\Lpack{memoir} index code.
4651 }

```

### 40.3 Choose the right variant

Then call `\create@edindex@for@memoir` or `\create@edindex@notfor@memoir` depending on the use of `memoir` and `imakeidx`

```

4652 \@ifclassloaded{memoir}{%
4653     \@ifpackageloaded{imakeidx}%
4654         {\create@edindex@notfor@memoir}%
4655         {%
4656             \@ifpackageloaded{indextools}%
4657                 {\create@edindex@notfor@memoir}%
4658                 {\create@edindex@for@memoir}%
4659             }%
4660     }%
4661 {\create@edindex@notfor@memoir}%

```

### 40.4 hyperref compatibility

`\hyperlinkformat` `\hyperlinkformat` command is to be used to have both a internal hyperlink and a format, when indexing.

```

4662 \newcommand{\hyperlinkformat}[3]{%
4663     \ifstrempy{#1}%
4664         {\hyperlink{#2}{#3}}%
4665         {\csuse{#1}{\hyperlink{#2}{#3}}}%
4666     }%

```

`\hyperlinkR` `\hyperlinkR` command is to be used to create a internal hyperlink and `\ledRflag`, when indexing.

```
4667 \newcommand{\hyperlinkR}[2]{%
4668   \hyperlink{#1}{#2\Rlineflag}%
4669 }%
4670
```

`\hyperlinkformatR` `\hyperlinkformatR` command is to be used to create a internal hyperlink, a format and a `\Rlineflag`, when indexing.

```
4671 \newcommand{\hyperlinkformatR}[3]{%
4672   \hyperlinkformat{#1}{#2}{#3\Rlineflag}%
4673 }%
4674
```

`\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`).

```
4675 \newcommand{\get@edindex@hyperref}[1]{%
```

We have to disable temporary spaces to work through a xstring bug (or feature?)

```
4676   \edef\temp@{%
4677     \catcode`\ =9 %space need for catcode
4678     #1%
4679     \catcode`\ =10 % space need for catcode
4680   }%
```

Now, we define `\@edindex@hyperref` if the `hyperindex` of `hyperref` is enabled.

```
4681   \ifdefequal{\iftrue}{\ifHy@hyperindex}{%
4682     \IfSubStr{\temp@}{|}%
4683     {\get@index@command#1+%
4684       \ifledRcol%
4685         \gdef\@edindex@hyperref{|\@index@parenthesis %space kept
4686           hyperlinkformatR{\@index@command}%
4687           {\edindexlab\thelabidx}}%
4688       \else%
4689         \gdef\@edindex@hyperref{|\@index@parenthesis %space kept
4690           hyperlinkformat{\@index@command}%
4691           {\edindexlab\thelabidx}}%
4692       \fi%
4693     }%
4694     {\get@index@command#1|+%
4695       \ifledRcol%
4696         \gdef\@edindex@hyperref{|hyperlinkR{\edindexlab\thelabidx}}%
4697       \else%
4698         \gdef\@edindex@hyperref{|hyperlink{\edindexlab\thelabidx}}%
4699       \fi%
4700     }%
4701   }%
```

```
4702 % If we use both xindy and hyperref, first get the \cs{index@command} command.
4703 % Then define \cs{@edindex@hyperref} in the form \verb+eledmacXXX+
```

```

4704 % \begin{macrocode}
4705 {\ifxindyhyperref%
4706 \IfSubStr{\temp@}{|}%
4707 {\get@index@command#1+}%
4708 {\get@index@command#1|+}%
4709 \gdef\@edindex@hyperref{|eledmac\thelabidx}%

```

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`.

```

4710 \IfStrEq{\@index@parenthesis}{(}%
4711 {%
4712 \csxdef{xindy@parenthesis@\@index@txt}{\thelabidx}%
4713 \gdef\@edindex@hyperref{| (eledmac\thelabidx}%
4714 }%
4715 {}%

```

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`.

```

4716 \IfStrEq{\@index@parenthesis}{)}%
4717 {%
4718 \xdef\@edindex@hyperref{)|eledmac\csuse{xindy@parenthesis@\@index@txt}}%
4719 \global\csundef{xindy@parenthesis@\@index@txt}%
4720 }%

```

Write in the `.xdy` file the attributes of the location.

```

4721 {
4722 \immediate\write\eledmac@xindy@out{%
4723 (define-attributes ("eledmac\thelabidx"))^^J
4724 \space\space(markup-locref^^J
4725 \eledmacmarkuplocdepth^^J
4726 :open "\string\hyperlink%
4727 \ifledRcol R\fi%
4728 {\edindexlab\thelabidx}%
4729 {\ifdefempty{\@index@command}%
4730 {}%
4731 {\@backslashchar\@index@command}%
4732 {"^^J
4733 :close "}"^^J
4734 :attr "eledmac\thelabidx"^^J
4735 )
4736 }%
4737 }%

```

And now, in any other case.

```

4738 \else%
4739 \gdef\@index@txt{#1}%
4740 \gdef\@edindex@hyperref{}%
4741 \fi%
4742 }%

```

4743 }

## 41 Macro as environment

The following is borrowed, and renamed, from the `amsmath` package. See also the CTT thread ‘`eq 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.

```
4744 \newtoks\@emptytoks
4745
```

The rest is from `amsmath`.

`\l@denbody` A token register to contain the body.

```
4746 \newtoks\l@denbody
4747
```

`\addtol@denbody` `\addtol@denbody{arg}` adds `arg` to the token register `\l@denbody`.

```
4748 \newcommand{\addtol@denbody}[1]{%
4749   \global\l@denbody\expandafter\the\l@denbody#1}}
4750
```

`\l@dcollect@body` The macro `\l@dcollect@body` starts the scan for the `\end{...}` 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`.

```
4751 \newcommand{\l@dcollect@body}[1]{%
4752   \l@denbody{\expandafter#1\expandafter\the\l@denbody}}%
4753   \edef\processl@denbody{\the\l@denbody\noexpand\end{\@currenvir}}%
4754   \l@denbody\@emptytoks \def\l@dbegin@stack{b}%
4755   \begingroup
4756     \expandafter\let\csname\@currenvir\endcsname\l@dcollect@body
4757   \edef\processl@denbody{\expandafter\noexpand\csname\@currenvir\endcsname}%
4758   \processl@denbody%
4759   }%
4760
```

`\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.

```
4761 \def\l@dpush@begins#1\begin#2{%
4762   \ifx\end#2\else b\expandafter\l@dpush@begins\fi}
4763
```

`\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.

```

4764 \def\l@dcollect@@body#1\end#2{%
4765   \edef\l@dbegin@stack{\l@dpush@begins#1\begin\end
4766                     \expandafter\@gobble\l@dbegin@stack}%
4767   \ifx\@empty\l@dbegin@stack
4768     \endgroup
4769     \@checkend{#2}%
4770     \addtol@denvbody{#1}%
4771   \else
4772     \addtol@denvbody{#1\end{#2}}%
4773   \fi
4774   \processl@denvbody % A little tricky! Note the grouping
4775 }
4776

```

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#2{%
  \@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>

```

## 42 Verse

This is principally Wayne Sullivan's code and commentary from EDSTANZA [Sul92].

The macro `\hangingsymbol` is used to insert a symbol on each hanging of verses. For example, in french typographie the symbol is '['. We obtain it by the next code:

```
\renewcommand{\hangingsymbol}{[,]}
```

The `\ifinstanza` boolean is used to be sure that we are in a stanza part.

```

\hangingsymbol
\ifinstanza 4777 \newcommand*{\hangingsymbol}{}
4778 \newif\ifinstanza

\insertthangingsymbol The boolean \ifinsertthangingsymbol is set to TRUE when \@lock is greater
\ifinsertthangingsymbol than 1, i.e. when we are not in the first line of a verse. The switch of
\ifinsertthangingsymbol \ifinsertthangingsymbol is made in \do@line before the printing of line but
after the line number calculation.

4779 \newif\ifinsertthangingsymbol
4780 \newcommand{\insertthangingsymbol}{%
4781 \ifinsertthangingsymbol%
4782   \ifinstanza%
4783     \hangingsymbol%
4784   \fi%
4785 \fi%
4786 }

```

`\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.

```
4787 \newcommand*{\ampersand}{\char`\&}
4788
```

`\stanza@count` Before we can define the main macros we need to save and reset some category codes. To save the current values we use `\next` and `\body` from the `\loop` macro.

```
4789 \chardef\body=\catcode`\@
4790 \catcode`\@=11
4791 \chardef\next=\catcode`\&
4792 \catcode`\&=\active
4793
```

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.

```
4794 \newcount\stanza@count
4795 \newlength{\stanzaindentbase}
4796 \setlength{\stanzaindentbase}{20pt}
4797
```

`\strip@szacnt` The indentations of stanza lines are non-negative integer multiples of the unit called `\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.

```
4798 \def\strip@szacnt#1,#2|{\def\@tempb{#1}\def\@tempa{#2|}}
4799 \newcommand*{\setstanzavalues}[2]{\def\@tempa{#2,,|}%
4800     \stanza@count\z@
4801     \def\next{\expandafter\strip@szacnt\@tempa
4802         \ifx\@tempb\empty\let\next\relax\else
4803         \expandafter\mathchardef\csname #1@\number\stanza@count
4804         @\endcsname\@tempb\relax
4805         \advance\stanza@count\@ne\fi\next}%
4806     \next}
4807
```

`\setstanzaindents` In the original `\setstanzavalues{sza}{...}` had to be called to set the indents, and similarly `\setstanzavalues{szp}{...}` to set the penalties. These two macros are a convenience to give the user one less thing to worry about (misspelling the first argument). 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.

```
4808 \newcommand*{\setstanzaindents}[1]{\setstanzavalues{sza}{#1}}
4809 \newcommand*{\setstanzapenalties}[1]{\setstanzavalues{szp}{#1}}
4810
```

```

4811 \newcounter{stanzaindentrepetition}
4812 \newcount\stanza@modulo
4813
4814 \newcommand*{\managestanza@modulo}[0]{
4815     \advance\stanza@modulo\@ne
4816     \ifnum\stanza@modulo>\value{stanzaindentrepetition}
4817         \stanza@modulo\@ne
4818     \fi
4819 }

```

**\stanzaindent** The macro **\stanzaindent**, when called at the beginning of a verse, changes the  
**\stanzaindent\*** indentation normally defined for this verse by **\setstanzaindent**. The starred version skips the current verse for the repetition of stanza indent.

```

4820 \newcommand{\stanzaindent}[1]{%
4821     \hspace{\dimexpr#1\stanzaindentbase-\parindent\relax}%
4822     \ignorespaces%
4823 }%
4824 \WithSuffix\newcommand\stanzaindent*[1]{%
4825     \stanzaindent{#1}%
4826     \global\advance\stanza@modulo-\@ne%
4827     \ifnum\stanza@modulo=0%
4828         \global\stanza@modulo=\value{stanzaindentrepetition}%
4829     \fi%
4830     \ignorespaces%
4831 }%

```

**\stanza@line** Now we arrive at the main works. **\stanza@line** sets the indentation for the  
**\stanza@hang** line and starts a numbered paragraph—each line is treated as a paragraph.  
**\sza@penalty** **\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.

```

4832 \newcommandx{\stanza@line}[1][1]{
4833     \ifnum\value{stanzaindentrepetition}=0
4834         \parindent=\csname sza@\number\stanza@count
4835             @\endcsname\stanzaindentbase
4836     \else
4837         \parindent=\csname sza@\number\stanza@modulo
4838             @\endcsname\stanzaindentbase
4839         \managestanza@modulo
4840     \fi
4841     \pstart[#1]\stanza@hang\ignorespaces}
4842 \xdef\stanza@hang{\noexpand\leavevmode\noexpand\startlock
4843     \hangindent\expandafter
4844     \noexpand\csname sza@0@\endcsname\stanzaindentbase
4845     \hangafter\@ne}
4846 \def\sza@penalty{\count@\csname szp@\number\stanza@count @\endcsname

```

```

4847         \ifnum\count@>\@M\advance\count@-\@M\penalty-\else
4848         \penalty\fi\count@}

```

`\startstanzahook` 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 `&`. For convenience the macro `\endstanzaextra` is included. The user may use this to add vertical space or penalties between stanzas.

As a further convenience, the macro `\startstanzahook` is called at the beginning of a stanza. This can be defined to do something useful.

```

4849 \let\startstanzahook\relax
4850 \let\endstanzaextra\relax
4851 \xdef\@startstanza[#1]{%
4852   \noexpand\instanzatrue\expandafter
4853   \begingroup\startstanzahook%
4854   \catcode`\noexpand\&\active%
4855   \global\stanza@count\@ne\stanza@modulo\@ne
4856   \noexpand\ifnum\expandafter\noexpand
4857   \csname sza@0\endcsname=z@\let\noexpand\stanza@hang\relax
4858   \let\noexpand\endlock\relax\noexpand\else\interlinepenalty
4859   \@M\rightskip\z@ plus 1fil\relax\noexpand\fi\noexpand\ifnum
4860   \expandafter\noexpand\csname szp@0\endcsname=z@
4861   \let\noexpand\sza@penalty\relax\noexpand\fi%
4862   \def\noexpand\falseverse{%
4863     \noexpand\led@war@FalseverseDeprecated%
4864     \global\advance\stanza@modulo-\@ne%
4865     \global\advance\stanza@count-\@ne%
4866     \relax\noexpand&\leavevmode\skipnumbering}
4867   \def\noexpand&{%
4868     \noexpand\newverse [] []}%
4869   \def\noexpand\&{\noexpand\@stopstanza}%
4870   \noexpand\stanza@line[#1]}
4871
4872 \newcommandx{\stanza}[1][1,usedefault]{\@startstanza[#1]}
4873
4874 \newcommandx{\@stopstanza}[1][1,usedefault]{%
4875   \unskip%
4876   \endlock%
4877   \pend[#1]%
4878   \endgroup%
4879   \instanzafalse%
4880   \endstanzaextra%
4881 }
4882

```

`\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`.

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.

## 43 Arrays and tables

```
% This is file tabmac.tex 1.0.  
% You find here macros for tabular structures compatible with  
% Edmac (authored by Lavagnino/Wujastyk). The use of the macros is  
% explained in German language in file tabanlei.dvi. The macros were  
% developed for Edmac 2.3, but this file has been adjusted to Edmac 3.16.  
%  
% ATTENTION: This file uses some Edmac control sequences (like  
% \text, \Afootnote etc.) and redefines \morenoexpands. If you yourself  
% redefined some Edmac control sequences, be careful: some adjustments  
% might be necessary.  
% October 1996  
%  
% My kind thanks to Nora G^?deke for valuable support. Any hints and  
% comments are welcome, please contact Herbert Breger,  
% Leibniz-Archiv, Waterloostr. 8, D -- 30169 Hannover, Germany  
% Tel.: 511 - 1267 327
```

The original `tabmac.tex` file was void of comments or any explanatory text other than the above notice. The algorithm is Breger's. I have made some cosmetic changes to the original code and reimplemented some things so they are more LaTeX-like. All the commentary is mine, as are any mistakes or errors.

`\l@dtabnoexpands` An extended and modified version of the original additional no expansions..

```

4897 \newcommand*{\l@dtabnoexpands}{%
4898   \let\rtab=0%
4899   \let\ctab=0%
4900   \let\ltab=0%
4901   \let\rtabtext=0%
4902   \let\ltabtext=0%
4903   \let\ctabtext=0%
4904   \let\edbeforetab=0%
4905   \let\edaftertab=0%
4906   \let\edatab=0%
4907   \let\edatabell=0%
4908   \let\edatleft=0%
4909   \let\edatright=0%
4910   \let\edvertline=0%
4911   \let\edvertdots=0%
4912   \let\edrowfill=0%
4913 }
4914
```

`\disable@familiarnotes` Macros to disable and restore familiar notes, to prevent them from printing multiple times in `edtabularx` and `edarrayx` environments.

```

4915 \newcommand{\disable@familiarnotes}{%
4916   \unless\ifnofamiliar%
4917     \def\do##1{%
4918       \csletcs{footnote@##1}{footnote##1}%
4919       \expandafter\renewcommand \csname footnote##1\endcsname[1]{%
4920         \protected@csxdef{@thefnmark##1}{\csuse{thefootnote##1}}%
4921         \csuse{@footnotemark##1}%
4922       }%
4923     }%
4924     \dolistloop{\@series}%
4925   \fi%
4926 }%
4927 \newcommand{\restore@familiarnotes}{%
4928   \unless\ifnofamiliar%
4929     \def\do##1{%
4930       \csletcs{footnote##1}{footnote@##1}%
4931     }%
4932     \dolistloop{\@series}%
4933   \fi%
4934 }%
4935
```

`\disable@sidenotes` The same, for side notes.

```
\restore@sidenotes 4936 \newcommand{\disable@sidenotes}{%
4937   \let\@@ledrightnote\ledrightnote%
4938   \let\@@ledleftnote\ledleftnote%
4939   \let\@@ledsidenote\ledsidenote%
4940   \let\ledrightnote@gobble%
4941   \let\ledleftnote@gobble%
4942   \let\ledsidenote@gobble%
4943 }%
4944 \newcommand{\restore@sidenotes}{%
4945   \let\ledrightnote\@@ledrightnote%
4946   \let\ledleftnote\@@ledleftnote%
4947   \let\ledsidenote\@@ledsidenote%
4948 }%
```

`\disable@notes` Disable/restore side and familiar notes.

```
\restore@notes 4949 \newcommand{\disable@notes}{%
4950   \disable@sidenotes%
4951   \disable@familiarnotes%
4952 }%
4953 \newcommand{\restore@notes}{%
4954   \restore@sidenotes%
4955   \restore@familiarnotes%
4956 }%
```

`\l@dampcount` `\l@dampcount` is a counter for the & column dividers and `\l@dcolcount` is a counter for the columns. These were `\Undcount` and `\stellencount` respectively.

```
4957 \newcount\l@dampcount
4958 \l@dampcount=1\relax
4959 \newcount\l@dcolcount
4960 \l@dcolcount=0\relax
4961
```

`\hilfsbox` Some (temporary) helper items.

```
\hilfsskip 4962 \newbox\hilfsbox
\Hilfsbox 4963 \newskip\hilfsskip
\hilfscount 4964 \newbox\Hilfsbox
4965 \newcount\hilfscount
4966
```

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).

```
4967 \newdimen\dcoli
4968 \newdimen\dcolii
4969 \newdimen\dcoliii
4970 \newdimen\dcoliv
4971 \newdimen\dcolv
4972 \newdimen\dcolvi
```



```

4973 \newdimen\dcolvii
4974 \newdimen\dcolviii
4975 \newdimen\dcolix
4976 \newdimen\dcolx
4977 \newdimen\dcolxi
4978 \newdimen\dcolxii
4979 \newdimen\dcolxiii
4980 \newdimen\dcolxiv
4981 \newdimen\dcolxv
4982 \newdimen\dcolxvi
4983 \newdimen\dcolxvii
4984 \newdimen\dcolxviii
4985 \newdimen\dcolxix
4986 \newdimen\dcolxx
4987 \newdimen\dcolxxi
4988 \newdimen\dcolxxii
4989 \newdimen\dcolxxiii
4990 \newdimen\dcolxxiv
4991 \newdimen\dcolxxv
4992 \newdimen\dcolxxvi
4993 \newdimen\dcolxxvii
4994 \newdimen\dcolxxviii
4995 \newdimen\dcolxxix
4996 \newdimen\dcolxxx
4997 \newdimen\dcolerr % added for error handling
4998

```

`\l@dcolwidth` This is a cunning way of storing the columnwidths indexed by the column number `\l@dcolcount`, like an array. (was `\Dimenzuordnung`)

```

4999 \newcommand{\l@dcolwidth}{\ifcase \the\l@dcolcount \dcoli %???
5000 \or \dcoli \or \dcolii \or \dcoliii
5001 \or \dcoliv \or \dcolv \or \dcolvi
5002 \or \dcolvii \or \dcolviii \or \dcolix \or \dcolx
5003 \or \dcolxi \or \dcolxii \or \dcolxiii
5004 \or \dcolxiv \or \dcolxv \or \dcolxvi
5005 \or \dcolxvii \or \dcolxviii \or \dcolxix \or \dcolxx
5006 \or \dcolxxi \or \dcolxxii \or \dcolxxiii
5007 \or \dcolxxiv \or \dcolxxv \or \dcolxxvi
5008 \or \dcolxxvii \or \dcolxxviii \or \dcolxxix \or \dcolxxx
5009 \else \dcolerr \fi}
5010

```

`\stepl@dcolcount` This increments the column counter, and issues an error message if it is too large.

```

5011 \newcommand*{\stepl@dcolcount}{\advance\l@dcolcount\@ne
5012 \ifnum\l@dcolcount>30\relax
5013 \led@err@TooManyColumns
5014 \fi}
5015

```

`\l@dssetmaxcolwidth` Sets the column width to the maximum value seen so far. (was `\dimenzuordnung`)

```

5016 \newcommand{\l@dsetmaxcolwidth}{%
5017   \ifdim\l@dcolwidth < \wd\hilfsbox
5018     \l@dcolwidth = \wd\hilfsbox
5019   \else \relax \fi}
5020

\EDTEXT We need to be able to modify the \edtext and \critext macros and also restore
\edtext their original definitions.
\CRITEXT 5021 \let\EDTEXT=\edtext
\xcritext 5022 \newcommand{\xedtext}[2]{\EDTEXT{#1}{#2}}
5023 \let\CRITEXT=\critext
5024 \long\def\xcritext #1#2/{\CRITEXT{#1}{#2}/}

\EDLABEL We need to be able to modify and restore the \edlabel macro.
\xedlabel 5025 \let\EDLABEL=\edlabel
5026 \newcommand*\{\xedlabel}[1]{\EDLABEL{#1}}

\EDINDEX Macros supporting modification and restoration of \edindex.
\xedindex 5027 \let\EDINDEX=\edindex
\nulledindex 5028 \ifl@dmemoir
5029   \newcommand{\xedindex}{\@bsphack%
5030     \ifnextchar [{\l@d@index}{\l@d@index[\jobname]}}
5031   \newcommand{\nulledindex}[2][\jobname]{\@bsphack\@esphack}
5032 \else
5033   \newcommand{\xedindex}{\@bsphack%
5034     \doedindexlabel
5035     \begingroup
5036     \@sanitize
5037     \@wredindex}
5038   \newcommand{\nulledindex}[1]{\@bsphack\@esphack}
5039 \fi
5040

\@line@num Macro supporting restoration of \linenum.
5041 \let\@line@num=\linenum

\l@dgobbledarg \l@dgobbledarg replaces its delineated argument by \relax (was \verschwinden).
\l@dgobblearg \l@dgobbleoptarg[\langle arg \rangle]{\langle arg \rangle} replaces these two arguments (first is optional)
by \relax.
5042 \def\l@dgobbledarg #1/{\relax}
5043 \newcommand*\{\l@dgobbleoptarg}[2][\relax]%
5044

\Relax
\NEXT 5045 \let\Relax=\relax
\@hilfs@count 5046 \let\NEXT=\next
5047 \newcount\@hilfs@count
5048

```

`\measuremcell` Measure (recursively) the width required for a math cell. (was `\messen`)

```

5049 \def\measuremcell #1&{%
5050   \ifx #1\ \ifnum\l@dc@colcount=0\let\NEXT\relax%
5051           \else\l@d@checkcols%
5052           \l@dc@colcount=0%
5053           \let\NEXT\measuremcell%
5054           \fi%
5055   \else\setbox\hilfsbox=\hbox{$\displaystyle{#1}$}%
5056           \step1@dc@colcount%
5057           \l@dsetmaxcolwidth%
5058           \let\NEXT\measuremcell%
5059   \fi\NEXT}
5060

```

`\measuretcell` Measure (recursively) the width required for a text cell. (was `\messentext`)

```

5061 \def\measuretcell #1&{%
5062   \ifx #1\ \ifnum\l@dc@colcount=0\let\NEXT\relax%
5063           \else\l@d@checkcols%
5064           \l@dc@colcount=0%
5065           \let\NEXT\measuretcell%
5066           \fi%
5067   \else\setbox\hilfsbox=\hbox{#1}%
5068           \step1@dc@colcount%
5069           \l@dsetmaxcolwidth%
5070           \let\NEXT\measuretcell%
5071   \fi\NEXT}
5072

```

`\measuremrow` Measure (recursively) the width required for a math row. (was `\Messen`)

```

5073 \def\measuremrow #1\{%
5074   \ifx #1&\let\NEXT\relax%
5075   \else\measuremcell #1&\&\&%
5076           \let\NEXT\measuremrow%
5077   \fi\NEXT}

```

`\measuretrow` Measure (recursively) the width required for a text row. (was `\Messentext`)

```

5078 \def\measuretrow #1\{%
5079   \ifx #1&\let\NEXT\relax%
5080   \else\measuretcell #1&\&\&%
5081           \let\NEXT\measuretrow%
5082   \fi\NEXT}
5083

```

`\edtabcolsep` The length `\edtabcolsep` controls the distance between columns. (was `\abstand`)

```

5084 \newskip\edtabcolsep
5085 \global\edtabcolsep=10pt
5086

```

`\NEXT`

`\Next`

```

5087 \let\NEXT\relax
5088 \let\Next=\next

\variab
5089 \newcommand{\variab}{\relax}
5090

\l@dccheckcols  Check that the number of columns is consistent. (was \tabfehlermeldung)
5091 \newcommand*{\l@dccheckcols}{%
5092   \ifnum\l@dcolcount=1\relax
5093   \else
5094     \ifnum\l@dampcount=1\relax
5095     \else
5096       \ifnum\l@dcolcount=\l@dampcount\relax
5097       \else
5098         \l@d@err@UnequalColumns
5099       \fi
5100     \fi
5101     \l@dampcount=\l@dcolcount
5102   \fi}
5103

\l@dmodforcritext  Modify and restore various macros for when \critext is used.
\l@drestoreforcritext 5104 \newcommand{\l@dmodforcritext}{%
5105   \let\critext\relax%
5106   \def\do##1{\global\csletcs{##1footnote}{\l@dgobbledarg}}%
5107   \dolistloop{\@series}%
5108   \let\edindex\nulledindex%
5109   \let\linenum\@gobble}
5110 \newcommand{\l@drestoreforcritext}{%
5111   \def\do##1{\csdef{##1footnote}##1##2/{\csuse{##1@footnote}{##1}{##2}}}%
5112   \dolistloop{\@series}%
5113   \let\edindex\xedndex}
5114

\l@dmodforedtext  Modify and restore various macros for when \edtext is used.
\l@drestoreforedtext 5115 \newcommand{\l@dmodforedtext}{%
5116   \let\edtext\relax
5117   \def\do##1{\global\csletcs{##1footnote}{\l@dgobbleoptarg}}%
5118   \dolistloop{\@series}%
5119   \let\edindex\nulledindex
5120   \let\linenum\@gobble}
5121 \newcommand{\l@drestoreforedtext}{%
5122   \def\do##1{\global\csletcs{##1footnote}{##1@footnote}}%
5123   \dolistloop{\@series}%
5124   \let\edindex\xedndex}

\l@dnullfills  Nullify and restore some column fillers, etc.
\l@drestorefills 5125 \newcommand{\l@dnullfills}{%

```

```

5126 \def\edlabel##1{%
5127 \def\edrowfill##1##2##3{%
5128 }
5129 \newcommand{\l@drestorefills}{%
5130 \def\edrowfill##1##2##3{\@EDROWFILL@{##1}{##2}{##3}}%
5131 }
5132

```

The original definition of `\rverteilen` and friends (‘verteilen’ is approximately ‘distribute’) was along the lines:

```

\def\rverteilen #1{\def\label##1{%
  \ifx #1! \ifnum\l@dcolcount=0%\removelastskip
    \let\Next\relax%
  \else\l@dcolcount=0%
    \let\Next=\rverteilen%
  \fi%
\else%
  \footnoteverschw%
  \step\l@dcolcount%
  \setbox\hilfsbox=\hbox{$\displaystyle{#1}$}%
  \let\critext=\xcritext\let\Dfootnote=\D@@footnote
  \let\Afootnote=\A@@footnote\let\Bfootnote=\B@@footnote
  \let\Cfootnote=\C@@footnote\let\linenum=\@line@num%
  \hilfsskip=\Dimenzuordnung%
  \advance\hilfsskip by -\wd\hilfsbox
  \def\label##1{\xlabel{##1}}%
  \hskip\hilfsskip$\displaystyle{#1}$%
  \hskip\edtabcolsep%
  \let\Next=\rverteilen%
\fi\Next}

```

where the lines

```

\let\critext=\xcritext\let\Dfootnote=\D@@footnote
\let\Afootnote=\A@@footnote\let\Bfootnote=\B@@footnote
\let\Cfootnote=\C@@footnote\let\linenum=\@line@num%
\hilfsskip=\Dimenzuordnung%
\advance\hilfsskip by -\wd\hilfsbox
\def\label##1{\xlabel{##1}}%

```

were common across the several `*verteilen*` macros, and also

```

\def\footnoteverschw{%
  \let\critext\relax
  \let\Afootnote=\verschwinden
  \let\Bfootnote=\verschwinden
  \let\Cfootnote=\verschwinden
  \let\Dfootnote=\verschwinden

```

```
\let\linenum=\@gobble}
```

`\letsforverteilen` Gathers some lets and other code that is common to the `*verteilen*` macros.

```
5133 \newcommand{\letsforverteilen}{%
5134   \let\critext\xcritext
5135   \let\edtext\xedtext
5136   \let\edindex\xedindex
5137   \def\do##1{\global\csletcs{##1footnote}{##1@footnote}}
5138   \dolistloop{\@series}%
5139   \let\linenum\@line@num
5140   \hilfsskip=\l@dcwidth%
5141   \advance\hilfsskip by -\wd\hilfsbox
5142   \def\edlabel##1{\xílabel{##1}}
5143 }
```

`\setmcellright` Typeset (recursively) cells of display math right justified. (was `\rverteilen`)

```
5144 \def\setmcellright #1&{\def\edlabel##1}%
5145   \let\edindex\nulledindex
5146   \ifx #1\\ \ifnum\l@dcwidth=0%\removelastskip
5147     \let\Next\relax%
5148   \else\l@dcwidth=0%
5149     \let\Next=\setmcellright%
5150   \fi%
5151   \else%
5152     \disablel@dtabfeet%
5153     \step1@dcwidth%
5154     \disable@notes%
5155     \setbox\hilfsbox=\hbox{$\displaystyle{#1}$}%
5156     \restore@notes%
5157     \letsforverteilen%
5158     \hskip\hilfsskip$\displaystyle{#1}$%
5159     \hskip\edtabcolsep%
5160     \let\Next=\setmcellright%
5161   \fi\Next}
5162 }
```

`\settcellright` Typeset (recursively) cells of text right justified. (was `\rverteilentext`)

```
5163 \def\settcellright #1&{\def\edlabel##1}%
5164   \let\edindex\nulledindex
5165   \ifx #1\\ \ifnum\l@dcwidth=0%\removelastskip
5166     \let\Next\relax%
5167   \else\l@dcwidth=0%
5168     \let\Next=\settcellright%
5169   \fi%
5170   \else%
5171     \disablel@dtabfeet%
5172     \step1@dcwidth%
5173     \disable@notes%
```

```

5174         \setbox\hilfsbox=\hbox{#1}%
5175         \restore@notes%
5176         \letsforverteilen%
5177         \hskip\hilfsskip#1%
5178         \hskip\edtabcolsep%
5179         \let\Next=\settccllright%
5180     \fi\Next}

```

`\setmcellleft` Typeset (recursively) cells of display math left justified. (was `\lverteilen`)

```

5181 \def\setmcellleft #1&{\def\edlabel##1{}}%
5182     \let\edindex\nulledindex
5183     \ifx #1\\ \ifnum\l@dc@count=0 \let\Next\relax%
5184         \else\l@dc@count=0%
5185             \let\Next=\setmcellleft%
5186             \fi%
5187     \else \disablel@dtabfeet%
5188         \step1@dc@count%
5189         \disable@notes%
5190         \setbox\hilfsbox=\hbox{$\displaystyle{#1}$}%
5191         \restore@notes%
5192         \letsforverteilen%
5193         $\displaystyle{#1}$\hskip\hilfsskip\hskip\edtabcolsep%
5194         \let\Next=\setmcellleft%
5195     \fi\Next}
5196

```

`\settcclleft` Typeset (recursively) cells of text left justified. (was `\lverteilentext`)

```

5197 \def\settcclleft #1&{\def\edlabel##1{}}%
5198     \let\edindex\nulledindex
5199     \ifx #1\\ \ifnum\l@dc@count=0 \let\Next\relax%
5200         \else\l@dc@count=0%
5201             \let\Next=\settcclleft%
5202             \fi%
5203     \else \disablel@dtabfeet%
5204         \step1@dc@count%
5205         \disable@notes%
5206         \setbox\hilfsbox=\hbox{#1}%
5207         \restore@notes%
5208         \letsforverteilen%
5209         #1\hskip\hilfsskip\hskip\edtabcolsep%
5210         \let\Next=\settcclleft%
5211     \fi\Next}

```

`\setmcellcenter` Typeset (recursively) cells of display math centered. (was `\zverteilen`)

```

5212 \def\setmcellcenter #1&{\def\edlabel##1{}}%
5213     \let\edindex\nulledindex
5214     \ifx #1\\ \ifnum\l@dc@count=0\let\Next\relax%
5215         \else\l@dc@count=0%
5216             \let\Next=\setmcellcenter%

```

```

5217         \fi%
5218     \else    \disablel@dtabfeet%
5219             \step1@dcolcount%
5220             \disable@notes%
5221             \setbox\hilfsbox=\hbox{$\displaystyle{#1}$}%
5222             \restore@notes%
5223             \letsforverteilen%
5224             \hskip 0.5\hilfsskip$\displaystyle{#1}$\hskip0.5\hilfsskip%
5225             \hskip\edtabcolsep%
5226             \let\Next=\setmcellcenter%
5227     \fi\Next}
5228

```

`\settccllcenter` Typeset (recursively) cells of text centered. (new)

```

5229 \def\settccllcenter #1&{\def\edlabel##1{%
5230     \let\edindex\nulledindex
5231     \ifx #1\ \ifnum\l@dcolcount=0 \let\Next\relax%
5232         \else\l@dcolcount=0%
5233         \let\Next=\settccllcenter%
5234     \fi%
5235     \else    \disablel@dtabfeet%
5236             \step1@dcolcount%
5237             \disable@notes%
5238             \setbox\hilfsbox=\hbox{#1}%
5239             \restore@notes%
5240             \letsforverteilen%
5241             \hskip 0.5\hilfsskip #1\hskip 0.5\hilfsskip%
5242             \hskip\edtabcolsep%
5243             \let\Next=\settccllcenter%
5244     \fi\Next}
5245

```

`\NEXT`

```

5246 \let\NEXT=\relax
5247

```

`\setmrowright` Typeset (recursively) rows of right justified math. (was `\rsetzen`)

```

5248 \def\setmrowright #1\\{%
5249     \ifx #1& \let\NEXT\relax
5250     \else \centerline{\setmcellright #1&\\&\\&}
5251     \let\NEXT=\setmrowright
5252     \fi\NEXT}

```

`\setthrowright` Typeset (recursively) rows of right justified text. (was `\rsetzentext`)

```

5253 \def\setthrowright #1\\{%
5254     \ifx #1& \let\NEXT\relax
5255     \else \centerline{\settccllright #1&\\&\\&}
5256     \let\NEXT=\setthrowright
5257     \fi\NEXT}
5258

```



`\setmrowleft` Typeset (recursively) rows of left justified math. (was `\lsetzen`)

```
5259 \def\setmrowleft #1\\{%
5260   \ifx #1&\let\NEXT\relax
5261   \else \centerline{\setmcellleft #1&\\&\\&}
5262         \let\NEXT=\setmrowleft
5263   \fi\NEXT}
```

`\settrorleft` Typeset (recursively) rows of left justified text. (was `\lsetzentext`)

```
5264 \def\settrorleft #1\\{%
5265   \ifx #1& \let\NEXT\relax
5266   \else \centerline{\settrcellleft #1&\\&\\&}
5267         \let\NEXT=\settrorleft
5268   \fi\NEXT}
5269
```

`\setmrowcenter` Typeset (recursively) rows of centered math. (was `\zsetzen`)

```
5270 \def\setmrowcenter #1\\{%
5271   \ifx #1& \let\NEXT\relax%
5272   \else \centerline{\setmcellcenter #1&\\&\\&}
5273         \let\NEXT=\setmrowcenter
5274   \fi\NEXT}
```

`\settrorcenter` Typeset (recursively) rows of centered text. (new)

```
5275 \def\settrorcenter #1\\{%
5276   \ifx #1& \let\NEXT\relax
5277   \else \centerline{\settrcellcenter #1&\\&\\&}
5278         \let\NEXT=\settrorcenter
5279   \fi\NEXT}
5280
```

`\nullsetzen` (was `\nullsetzen`)

```
5281 \newcommand{\nullsetzen}{%
5282   \step1@dcolcount%
5283   \l@dcolwidth=0pt%
5284   \ifnum\l@dcolcount=30\let\NEXT\relax%
5285     \l@dcolcount=0\relax
5286   \else\let\NEXT\nullsetzen%
5287   \fi\NEXT}
5288
```

`\edatleft` `\edatleft[ $\langle math \rangle\{\langle symbol \rangle\}\langle len \rangle$ ]` (combination and generalisation of original `\Seklam` and `\Seklamgl`). Left  $\langle symbol \rangle$ ,  $2\langle len \rangle$  high with prepended  $\langle math \rangle$  vertically centered.

```
5289 \newcommand{\edatleft}[3][\@empty]{%
5290   \ifx#1\@empty
5291     \vbox to 10pt{\vss\hbox{$\left#2\vrule width0pt height #3
5292                               depth 0pt \right. $\hss}\vfil}
5293   \else
5294     \vbox to 4pt{\vss\hbox{$#1\left#2\vrule width0pt height #3
```

```

5295             depth Opt \right. $\vfil}
5296 \fi}

\edatright \edatright[ $]{\langle symbol \rangle}{\langle len \rangle} (combination and generalisation of origi-
nal \seklam and \seklamgl). Right \langle symbol \rangle, 2\langle len \rangle high with appended \langle math \rangle
vertically centered.

5297 \newcommand{\edatright}[3][\@empty]{%
5298   \ifx#1\@empty
5299     \vbox to 10pt{\vss\hbox{$\left.\vrule width0pt height #3
5300             depth Opt \right#2 $\hss}\vfil}
5301   \else
5302     \vbox to 4pt{\vss\hbox{$\left.\vrule width0pt height #3
5303             depth Opt \right#2 #1 $\vfil}
5304   \fi}
5305

\edvertline \edvertline{\langle len \rangle} vertical line \langle len \rangle high. (was \sestrich)
5306 \newcommand{\edvertline}[1]{\vbox to 8pt{\vss\hbox{\vrule height #1\vfil}}
5307

\edvertdots \edvertdots{\langle len \rangle} vertical dotted line \langle len \rangle high. (was \sepunkte)
5308 \newcommand{\edvertdots}[1]{\vbox to 1pt{\vss\vbox to #1%
5309   {\cleaders\hbox{$\m@th\hbox{.}\vbox to 0.5em{ }\vfil}}}}
5310$ 
```

I don't know if this is relevant here, and I haven't tried it, but the following appeared on CTT.

From: mdw@nsict.org (Mark Wooding)  
 Newsgroups: comp.text.tex  
 Subject: Re: Dotted line  
 Date: 13 Aug 2003 13:51:14 GMT

Alexis Eisenhofer <alexis@eisenhofer.de> wrote:  
 > Can anyone provide me with the LaTeX command for a vertical dotted line?

How dotted? Here's the basic rune.

```

\newbox\linedotbox
\setbox\linedotbox=\vbox{...}
\leaders\copy\linedotbox\vskip2in

```

For just dots, this works:

```

\setbox\linedotbox=\vbox{\hbox{\normalfont.}\kern2pt}

```

For dashes, something like

```

\setbox\linedotbox=\vbox{\leaders\vrule\vskip2pt\vskip2pt}

```

is what you want. (Adjust the `2pt' values to taste. The first one is the length of the dashes, the second is the length of the gaps.)

For dots in mid-paragraph, you need to say something like

`\lower10pt\vbox{\leaders\copy\linedotbox\vskip2in}`  
 which is scungy but works.

-- [mdw]

`\edfilldimen` A length. (was `\klamdimen`)

```
5311 \newdimen\edfilldimen
5312 \edfilldimen=0pt
5313
```

`\c@addcolcount` A counter to hold the number of a column. We use a roman number so that we  
`\theaddcolcount` can grab the column dimension from `\dcol....`

```
5314 \newcounter{addcolcount}
5315 \renewcommand{\theaddcolcount}{\roman{addcolcount}}
```

`\l@dtabaddcols` `\l@dtabaddcols{<startcol>}{<endcol>}` adds the widths of the columns `<startcol>`  
 through `<endcol>` to `\edfilldimen`. It is a LaTeX style reimplementaion of the  
 original `\@add@`.

```
5316 \newcommand{\l@dtabaddcols}[2]{%
5317   \l@dccheckstartend{#1}{#2}%
5318   \ifl@dstartendok
5319     \setcounter{addcolcount}{#1}%
5320     \@whilenum \value{addcolcount}<#2\relax \do
5321       {\advance\edfilldimen by \the \csname dcol\theaddcolcount\endcsname
5322        \advance\edfilldimen by \edtabcolsep
5323        \stepcounter{addcolcount}}%
5324     \advance\edfilldimen by \the \csname dcol\theaddcolcount\endcsname
5325   \fi
5326 }
5327
```

`\ifl@dstartendok` `\l@dccheckstartend{<startcol>}{<endcol>}` checks that the values of `<startcol>` and  
`\l@dccheckstartend` `<endcol>` are sensible. If they are then `\ifl@dstartendok` is set TRUE, otherwise  
 it is set FALSE.

```
5328 \newif\ifl@dstartendok
5329 \newcommand{\l@dccheckstartend}[2]{%
5330   \l@dstartendoktrue
5331   \ifnum #1<\@ne
5332     \l@dstartendokfalse
5333     \led@err@LowStartColumn
5334   \fi
5335   \ifnum #2>30\relax
5336     \l@dstartendokfalse
5337     \led@err@HighEndColumn
5338   \fi
5339   \ifnum #1>#2\relax
5340     \l@dstartendokfalse
5341     \led@err@ReverseColumns
```

```

5342 \fi
5343 }
5344

```

`\edrowfill` `\edrowfill{<startcol>}{<endcol>}` fill fills columns `<startcol>` to `<endcol>` inclusive with `<fill>` (e.g. `\hrulefill`, `\upbracefill`). This is a LaTeX style reimplementation and generalization of the original `\waklam`, `\Waklam`, `\waklamec`, `\wastricht` and `\wapunktel` macros.

```

5345 \newcommand*{\edrowfill}[3]{%
5346   \l@dtabaddcols{#1}{#2}%
5347   \hb@xt@ \the\l@dcolwidth{\hb@xt@ \the\edfilldimen{#3}\hss}}
5348 \let\@edrowfill=\edrowfill
5349 \def\@EDROWFILL@#1#2#3{\@edrowfill@{#1}{#2}{#3}}
5350

```

`\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`. (was `\linksltab`)

```

5351 \newcommand{\leftltab}[1]{%
5352   \hb@xt@ \z@{\vbox{\edtabindent%
5353     \moveleft\Hilfsskip\hbox{\ #1}}\hss}}
5354

```

`\leftrtab` `\leftrtab{<text>}{<math>}` for `\edbeforetab` in `\rtab`. (was `\linksrtab`)

```

5355 \newcommand{\leftrtab}[2]{%
5356   #2\hb@xt@ \z@{\vbox{\edtabindent%
5357     \advance\Hilfsskip by\dcoli%
5358     \moveleft\Hilfsskip\hbox{\ #1}}\hss}}
5359

```

`\leftctab` `\leftctab{<text>}{<math>}` for `\edbeforetab` in `\ctab`. (was `\linksztab`)

```

5360 \newcommand{\leftctab}[2]{%
5361   \hb@xt@ \z@{\vbox{\edtabindent\l@dcolcount=\l@dampcount%
5362     \advance\Hilfsskip by 0.5\dcoli%
5363     \setbox\hilfsbox=\hbox{\def\edlabel##1}%
5364     \disablel@dtabfeet$\displaystyle{#2}$}%
5365     \advance\Hilfsskip by -0.5\wd\hilfsbox%
5366     \moveleft\Hilfsskip\hbox{\ #1}}\hss}%
5367   #2}
5368

```

`\rightctab` `\rightctab{<math>}{<text>}` for `\edaftertab` in `\ctab`. (was `\rechtsztab`)

```

5369 \newcommand{\rightctab}[2]{%
5370   \setbox\hilfsbox=\hbox{\def\edlabel##1}%
5371   \disablel@dtabfeet#2\l@dampcount=\l@dcolcount%

```

```

5372      #1\hb@xt@\z@\vbox{\edtabindent\l@dcolcount=\l@dampcount%
5373      \advance\Hilfsskip by 0.5\l@dcolwidth%
5374      \advance\Hilfsskip by -\wd\hilfsbox%
5375      \setbox\hilfsbox=\hbox{\def\edlabel##1}%
5376      \disablel@dtabfeet$\displaystyle{#1}$}%
5377      \advance\Hilfsskip by -0.5\wd\hilfsbox%
5378      \advance\Hilfsskip by \edtabcolsep%
5379      \moveright\Hilfsskip\hbox{ #2}}\hss}%
5380      }
5381

```

`\rightltab` `\rightltab{<math>}<{<text>}` for `\edaftertab` in `\ltab`. (was `\rechtsltab`)

```

5382 \newcommand{\rightltab}[2]{%
5383     \setbox\hilfsbox=\hbox{\def\edlabel##1}%
5384     \disablel@dtabfeet#2}\l@dampcount=\l@dcolcount%
5385     #1\hb@xt@\z@\vbox{\edtabindent\l@dcolcount=\l@dampcount%
5386     \advance\Hilfsskip by\l@dcolwidth%
5387     \advance\Hilfsskip by-\wd\hilfsbox%
5388     \setbox\hilfsbox=\hbox{\def\edlabel##1}%
5389     \disablel@dtabfeet$\displaystyle{#1}$}%
5390     \advance\Hilfsskip by-\wd\hilfsbox%
5391     \advance\Hilfsskip by\edtabcolsep%
5392     \moveright\Hilfsskip\hbox{ #2}}\hss}%
5393     }
5394

```

`\rightrtab` `\rightrtab{<math>}<{<text>}` for `\edaftertab` in `\rtab`. (was `\rechtsrtab`)

```

5395 \newcommand{\rightrtab}[2]{%
5396     \setbox\hilfsbox=\hbox{\def\edlabel##1}%
5397     \disablel@dtabfeet#2}%
5398     #1\hb@xt@\z@\vbox{\edtabindent%
5399     \advance\Hilfsskip by-\wd\hilfsbox%
5400     \advance\Hilfsskip by\edtabcolsep%
5401     \moveright\Hilfsskip\hbox{ #2}}\hss}%
5402     }
5403

```

`\rtab` `\rtab{<body>}` typesets `<body>` as an array with the entries right justified. (was `\edbforetab` `\rtab`) (Here and elsewhere, `\edbforetab` and `\edaftertab` were originally `\davor` and `\danach`) The original `\rtab` and friends included a fair bit of common code which I have extracted into macros.

The process is first to measure the `<body>` to get the column widths, and then in a second pass to typeset the body.

```

5404 \newcommand{\rtab}[1]{%
5405     \l@dnnullfills
5406     \def\edbforetab##1##2{\lefttrtab{##1}{##2}}%
5407     \def\edaftertab##1##2{\righttrtab{##1}{##2}}%
5408     \measurebody{#1}%
5409     \l@drestorefills

```

```

5410 \variab
5411 \setmrowright #1\\&\\%
5412 \enablel@dtabfeet}
5413

```

`\measuretbody` `\measuretbody{<body>}` measures the array `<body>`.

```

5414 \newcommand{\measuretbody}[1]{%
5415 \disablel@dtabfeet%
5416 \l@dc@colcount=0%
5417 \nullsetzen%
5418 \l@dc@colcount=0
5419 \measuremrow #1\\&\\%
5420 \global\l@dampcount=1}
5421

```

`\rtabtext` `\rtabtext{<body>}` typesets `<body>` as a tabular with the entries right justified. (was `\rtabtext`)

```

5422 \newcommand{\rtabtext}[1]{%
5423 \l@dn@nullfills
5424 \measuretbody{#1}%
5425 \l@dr@estorefills
5426 \variab
5427 \settr@rowright #1\\&\\%
5428 \enablel@dtabfeet}
5429

```

`\measuretbody` `\measuretbody{<body>}` measures the tabular `<body>`.

```

5430 \newcommand{\measuretbody}[1]{%
5431 \disable@notes%
5432 \disablel@dtabfeet%
5433 \l@dc@colcount=0%
5434 \nullsetzen%
5435 \l@dc@colcount=0
5436 \measuretbody #1\\&\\%
5437 \restore@notes%
5438 \global\l@dampcount=1}
5439

```

`\ltab` Array with entries left justified. (was `\ltab`)

```

\edbeforetab 5440 \newcommand{\ltab}[1]{%
\edaftertab 5441 \l@dn@nullfills
5442 \def\edbeforetab##1##2{\leftltab{##1}{##2}}%
5443 \def\edaftertab##1##2{\rightltab{##1}{##2}}%
5444 \measuretbody{#1}%
5445 \l@dr@estorefills
5446 \variab
5447 \setmrowleft #1\\&\\%
5448 \enablel@dtabfeet}
5449

```

`\ltabtext` Tabular with entries left justified. (was `\ltabtext`)

```
5450 \newcommand{\ltabtext}[1]{%
5451   \l@dnnullfills
5452   \measuretbody{#1}%
5453   \l@drestorefills
5454   \variab
5455   \settrorleft #1\&\%
5456   \enablel@dtabfeet}
5457
```

`\ctab` Array with centered entries. (was `\ztab`)

```
\edbeforetab 5458 \newcommand{\ctab}[1]{%
\edaftertab 5459   \l@dnnullfills
5460   \def\edbeforetab##1##2{\leftctab{##1}{##2}}%
5461   \def\edaftertab##1##2{\rightctab{##1}{##2}}%
5462   \measuretbody{#1}%
5463   \l@drestorefills
5464   \variab
5465   \setmrowcenter #1\&\%
5466   \enablel@dtabfeet}
5467
```

`\ctabtext` Tabular with entries centered. (new)

```
5468 \newcommand{\ctabtext}[1]{%
5469   \l@dnnullfills
5470   \measuretbody{#1}%
5471   \l@drestorefills
5472   \variab
5473   \settrorcenter #1\&\%
5474   \enablel@dtabfeet}
5475
```

`\spreadtext` (was `\breitertext`)

```
5476 \newcommand{\spreadtext}[1]{%\l@dcolcount=\l@dampcount%
5477   \hb@xt@ \the\l@dcolwidth{\hbox{#1}\hss}}
```

`\spreadmath` (was `\breiter`, ‘breiter’ = ‘broadly’)

```
5478 \newcommand{\spreadmath}[1]{%
5479   \hb@xt@ \the\l@dcolwidth{\hbox{$\displaystyle{#1}$}\hss}}
5480
```

I have left the remaining TABMAC alone, apart from changing some names. I’m not yet sure what they do or how they do it. Authors should not use any of these as they are likely to be mutable.

`\tabellzwischen` (was `\tabellzwischen`)

```
5481 \def\tabellzwischen #1{%
5482   \ifx #1\ \let\NEXT\relax \l@dcolcount=0
5483   \else \stepl@dcolcount%
```

```

5484         \l@dcwidth = #1 mm
5485         \let\NEXT=\tabellzwischen
5486     \fi \NEXT }
5487

```

\edatabell For example \edatabell 4 & 19 & 8 \\ specifies 3 columns with widths of 4, 19, and 8mm. (was \atabell)

```

5488 \def\edatabell #1\\{%
5489     \tabellzwischen #1&\\&}

```

\Setzen (was \Setzen, ‘setzen’ = ‘set’)

```

5490 \def\Setzen #1&{%
5491     \ifx #1\relax \let\NEXT=\relax
5492     \else \step1@dcwidth%
5493         \let\tabskip=\l@dcwidth
5494         \EDTAB #1|
5495         \let\NEXT=\Setzen
5496     \fi\NEXT}
5497

```

\EDTAB (was \ATAB)

```

5498 \def\EDTAB #1\\{%
5499     \ifx #1\Relax \centerline{\Setzen #1\relax&}
5500         \let\Next\relax
5501     \else \centerline{\Setzen #1&\relax&}
5502         \let\Next=\EDTAB
5503     \fi\Next}

```

\edatab (was \atab)

```

5504 \newcommand{\edatab}[1]{%
5505     \variab%
5506     \EDTAB #1\\&\Relax\\}
5507

```

\HILFSskip More helpers.

```

\Hilfsskip 5508 \newskip\HILFSskip
5509 \newskip\Hilfsskip
5510

```

\EDTABINDENT (was \TABINDENT)

```

5511 \newcommand{\EDTABINDENT}{%
5512     \ifnum\l@dcwidth=30\let\NEXT\relax\l@dcwidth=0%
5513     \else\step1@dcwidth%
5514         \advance\Hilfsskip by\l@dcwidth%
5515         \ifdim\l@dcwidth=0pt\advance\hilfscount\@ne
5516         \else\advance\Hilfsskip by \the\hilfscount\edtabcolsep%
5517         \hilfscount=1\fi%
5518         \let\NEXT=\EDTABINDENT%
5519     \fi\NEXT}%

```



\edtabindent (was \tabindent)

```
5520 \newcommand{\edtabindent}{%
5521   \l@dc@colcount=0\relax
5522   \Hilfsskip=0pt%
5523   \hilfsc@count=1\relax
5524   \EDTABINDENT%
5525   \hilfsskip=\hsize%
5526   \advance\hilfsskip -\Hilfsskip%
5527   \Hilfsskip=0.5\hilfsskip%
5528 }%
5529
```

\EDTAB (was \TAB)

```
5530 \def\EDTAB #1|#2|{%
5531   \setbox\tabhilfbox=\hbox{$\displaystyle{#1}$}%
5532   \setbox\tabHilfbox=\hbox{$\displaystyle{#2}$}%
5533   \advance\tabelskip -\wd\tabhilfbox%
5534   \advance\tabelskip -\wd\tabHilfbox%
5535   \unhbox\tabhilfbox\hskip\tabelskip%
5536   \unhbox\tabHilfbox}%
5537
```

\EDTABtext (was \TABtext)

```
5538 \def\EDTABtext #1|#2|{%
5539   \setbox\tabhilfbox=\hbox{#1}%
5540   \setbox\tabHilfbox=\hbox{#2}%
5541   \advance\tabelskip -\wd\tabhilfbox%
5542   \advance\tabelskip -\wd\tabHilfbox%
5543   \unhbox\tabhilfbox\hskip\tabelskip%
5544   \unhbox\tabHilfbox}%

```

\tabhilfbox Further helpers.

```
\tabHilfbox 5545 \newbox\tabhilfbox
5546 \newbox\tabHilfbox
5547
```

```
%%%%%%%%%%
% That finishes tabmac
%%%%%%%%%%
```

edarrayl The ‘environment’ forms for \ltab, \ctab and \rtab.

```
edarrayc 5548 \newenvironment{edarrayl}{\l@dc@col@body\ltab}{}
edarrayr 5549 \newenvironment{edarrayc}{\l@dc@col@body\ctab}{}
5550 \newenvironment{edarrayr}{\l@dc@col@body\rtab}{}
5551
```

edtabularl The ‘environment’ forms for \ltabtext, \ctabtext and \rtabtext.

```
edtabularc 5552 \newenvironment{edtabularl}{\l@dc@col@body\ltabtext}{}
edtabularr
```

Here's the code for enabling `\edtext` (instead of `\critext`).

5564

## 44.1 Deprecated commands

```

\initnumbering@sectcmd \initnumbering@sectcmd defines \ledxxx commands. These commands are dep-
\ledsection recated. It also defines quotation environment. Note: this assumes that the user
\ledsection* didn't change \chapter. If he did, he should redefine \initnumbering@sectcmd.
\ledsubsection 5565 \newcommand{\initnumbering@sectcmd}{
\ledsubsection* 5566 \newcommand{\ledsection}[2] [] {%
\ledsubsubsection 5567 \led@war@ledxxxDeprecated{section}%
\ledsubsubsection* 5568 \leavevmode\pend\vspace{3.5ex \@plus 1ex \@minus .2ex}\ifl@dpairing\else\skipnumbering
\ledchapter 5569 \pstart%
\ledchapter* 5570 \leavevmode\ifledsecnolinenumber\skipnumbering\fi\section{##1}{##2}\leavevmode\vspace
\@patchforledchapter 5571 \vspace{-2\parskip}\vspace{-2\baselineskip}%
\quotation 5572 \ifautopar\else\pstart\fi
\endquotation 5573 }
\quote 5574 \WithSuffix\newcommand\ledsection*[1]{%
\endquote 5575 \led@war@ledxxxDeprecated{section*}%
5576 \leavevmode\pend\vspace{3.5ex \@plus 1ex \@minus .2ex}\ifl@dpairing\else\skipnumbering
5577 \pstart%
5578 \leavevmode\ifledsecnolinenumber\skipnumbering\fi\section*{##1}\leavevmode\vspace{2.
5579 \vspace{-2\parskip}\vspace{-2\baselineskip}%
5580 \ifautopar\else\pstart\fi
5581 }
5582 \newcommand{\ledsubsection}[2] [] {%
5583 \led@war@ledxxxDeprecated{subsection}%
5584 \leavevmode\pend\vspace{3.5ex \@plus 1ex \@minus .2ex}\ifl@dpairing\else\skipnumbering
5585 \pstart%
5586 \leavevmode\ifledsecnolinenumber\skipnumbering\fi\subsection{##1}{##2}\leavevmode\vspace
5587 \vspace{-2\parskip}\vspace{-2\baselineskip}%

```

```

5588     \ifautopar\else\pstart\fi
5589 }
5590 \WithSuffix\newcommand\ledsubsection*[1]{%
5591     \led@war@ledxxxDeprecated{subsection*}%
5592     \leavevmode\pend\vspace{3.5ex \@plus 1ex \@minus .2ex}\ifl@dpairing\else\skipnumbering\fi%
5593     \pstart%
5594     \leavevmode\ifledsecnolinenumber\skipnumbering\fi\subsection*{##1}\leavevmode\vspace{1.5ex \@plus
5595     \vspace{-2\parskip}\vspace{-2\baselineskip}%
5596     \ifautopar\else\pstart\fi
5597 }
5598 \newcommand{\ledsubsubsection}[2][]{%
5599     \led@war@ledxxxDeprecated{subsubsection}%
5600     \leavevmode\pend\vspace{3.5ex \@plus 1ex \@minus .2ex}\ifl@dpairing\else\skipnumbering\fi%
5601     \pstart%
5602     \leavevmode\ifledsecnolinenumber\skipnumbering\fi\subsubsection[##1]{##2}\leavevmode\vspace{1.5ex \@plus
5603     \vspace{-2\parskip}\vspace{-2\baselineskip}%
5604     \ifautopar\else\pstart\fi
5605 }
5606 \WithSuffix\newcommand\ledsubsubsection*[1]{%
5607     \led@war@ledxxxDeprecated{subsubsection*}%
5608     \leavevmode\pend\vspace{3.5ex \@plus 1ex \@minus .2ex}\ifl@dpairing\else\skipnumbering\fi%
5609     \pstart%
5610     \leavevmode\ifledsecnolinenumber\skipnumbering\fi\subsubsection*{##1}\leavevmode\vspace{1.5ex \@plus
5611     \vspace{-2\parskip}\vspace{-2\baselineskip}%
5612     \ifautopar\else\pstart\fi
5613 }
5614 \newcommand\ledchapter[2][]{%
5615     \led@war@ledxxxDeprecated{chapter}%
5616     \ifl@dmemoir%
5617     \gdef\ch@pt@c{##1}%
5618     \fi%
5619     ~\pend\skipnumbering%
5620     \pstart%
5621     \@patchforledchapter\chapter[##1]{##2}%
5622     \pend\pstart}
5623 \WithSuffix\newcommand\ledchapter*[1]{%
5624     \led@war@ledxxxDeprecated{chapter*}%
5625     ~\pend\skipnumbering%
5626     \pstart%
5627     \@patchforledchapter\chapter*{##1}\pend%
5628     \pstart}
5629 \def\@patchforledchapter{
5630     \patchcmd{\@makeschapterhead}{1\par}{1}{-}{-}
5631     \pretocmd{\@makeschapterhead}{\par}{-}{-}
5632     \apptocmd{\@makeschapterhead}{\par}{-}{-}
5633     \patchcmd{\@makeschapterhead}{\vskip 40\p@}{-}{-}{-}
5634     \patchcmd{\@makechapterhead}{1\par}{1}{-}{-}
5635     \pretocmd{\@makechapterhead}{\par}{-}{-}
5636     \apptocmd{\@makechapterhead}{\par}{-}{-}
5637     \patchcmd{\@makechapterhead}{\vskip 40\p@}{-}{-}{-}

```

```

5638 \apptocmd{\@chapter}{\par\leavevmode\vspace{40 \p@}\skipnumbering}{\{}}
5639 \apptocmd{\@schapter}{\par\leavevmode\vspace{40 \p@}\skipnumbering}{\{}}
5640 \newcommand\beforeledchapter{\pend\cleardoublepage\pstart}
5641 \patchcmd{\chapter}{\cleardoublepage}{\relax}{\{}}
5642 \patchcmd{\chapter}{\clearpage}{\relax}{\{}}
5643 }
5644 \ifnoquotation@else
5645 \renewcommand{\quotation}{\par\leavevmode%
5646 \parindent=1.5em%
5647 \skipnumbering%
5648 \ifautopar%
5649 \vskip-\parskip%
5650 \else%
5651 \vskip\topsep%
5652 \fi%
5653 \global\leftskip=\leftmargin%
5654 \global\rightskip=\leftmargin%
5655 }
5656 \renewcommand{\endquotation}{\par%
5657 \global\leftskip=0pt%
5658 \global\rightskip=0pt%
5659 \leavevmode%
5660 \skipnumbering%
5661 \ifautopar%
5662 \vskip-\parskip%
5663 \else%
5664 \vskip\topsep%
5665 \fi%
5666 }
5667 \renewcommand{\quote}{\par\leavevmode%
5668 \parindent=0pt%
5669 \skipnumbering%
5670 \ifautopar%
5671 \vskip-\parskip%
5672 \else%
5673 \vskip\topsep%
5674 \fi%
5675 \global\leftskip=\leftmargin%
5676 \global\rightskip=\leftmargin%
5677 }
5678 \renewcommand{\endquote}{\par%
5679 \global\leftskip=0pt%
5680 \global\rightskip=0pt%
5681 \leavevmode%
5682 \skipnumbering%
5683 \ifautopar%
5684 \vskip-\parskip%
5685 \else%
5686 \vskip\topsep%
5687 \fi%

```

```

5688                                     }
5689     \fi
5690 }

```

`\ledsectnotoc` The `\ledsectnotoc` only disables the `\addcontentsline` macro.

```

5691 \newcommand{\ledsectnotoc}{\let\addcontentsline\@gobblethree}

```

`\ledsectnomark` The `\ledsectnomark` only disables the `\chaptermark`, `\sectionmark` and `\subsectionmark` macros.

```

5692 \newcommand{\ledsectnomark}{%
5693   \let\chaptermark\@gobble%
5694   \let\sectionmark\@gobble%
5695   \let\subsectionmark\@gobble%
5696 }

```

## 44.2 New commands : `\eledxxx`

The new system of `\eledxxx` commands to section text work like this:

1. When one of these commands is called, `eledmac` 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. `eledmac` adds the title of the section to `pstart`, as normal content. This is to enable critical notes.
3. When  $\text{\LaTeX}$  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  $\text{\LaTeX}$  sectioning command.
4. This last command is called when the `pstart` is effectively printed.

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`.

```

5697 \notbool{@noeled@sec}{%

```

`\beforeeledchapter` For technical reasons, not yet solved, page-breaking before chapters can't be made automatically by `eledmac`. Users have to use `\beforeeledchapter`.

```
5698 \ifl@dmemoir
5699   \newcommand\beforeeledchapter{\clearforchapter}
5700 \else
5701   \newcommand\beforeeledchapter{\ifopenright\cleardoublepage\else\clearpage\fi}
5702 \fi
```

`\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.

```
5703 \newif\if@eled@sectioning
```

`\print@leftmargin@eledsection` `\print@leftmargin@eledsection` and `\print@rightmargin@eledsection` are added by `eledmac` inside the code of sectioning command, in order to affix lines numbers. They include tests for RTL languages.

```
5704 \def\print@rightmargin@eledsection{%
5705   \if@eled@sectioning%
5706     \begingroup%
5707     \if@RTL%
5708       \let\llap\rlap%
5709       \let\leftlinenum\rightlinenum%
5710       \let\leftlinenumR\rightlinenumR%
5711       \let\l@drd@ta\l@dld@ta%
5712       \let\l@dlsn@te\l@dlsn@te%
5713     \fi%
5714     \hfill\l@drd@ta \csuse{LR}{\l@dlsn@te}%
5715     \endgroup%
5716   \fi%
5717 }%
5718
5719 \def\print@leftmargin@eledsection{%
5720   \if@eled@sectioning%
5721     \leavevmode%
5722     \begingroup%
5723     \if@RTL%
5724       \let\rlap\llap%
5725       \let\rightlinenum\leftlinenum%
5726       \let\rightlinenumR\leftlinenumR%
5727       \let\l@dld@ta\l@drd@ta%
5728       \let\l@dlsn@te\l@dlsn@te%
5729     \fi%
5730     \l@dld@ta\csuse{LR}{\l@dlsn@te}%
5731     \endgroup%
5732   \fi%
5733 }%
5734
```

`\chapter` We have to patch L<sup>A</sup>T<sub>E</sub>X, book and memoir sectioning commands in order to:

```
\M@ssect
\@mem@old@ssect
\@makechapterhead
\@makechapterhead
\@makeschapterhead
\@ssect
\@sssect
```

- Disable `\edtext` inside.
- Disable page breaking (for `\chapter`).
- Add line numbers and sidenotes.

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.

```

5735 \catcode\#=12 % Space NEEDS by \catcode
5736 \AtBeginDocument{%
5737 \patchcmd{\chapter}{\clearforchapter}{%
5738   \if@eled@sectioning\else%
5739   \ifl@dprintingpages\else%
5740     \clearforchapter%
5741     \fi%
5742   \fi%
5743 }
5744 {}
5745 {}
5746
5747 \pretocmd{\M@sect}
5748   {\let\old@edtext=\edtext%
5749   \let\edtext=\dummy@edtext@showlemma%
5750 }
5751 {}
5752 {}
5753
5754 \apptocmd{\M@sect}
5755   {\let\edtext=\old@edtext}
5756 {}
5757 {}
5758
5759 \patchcmd{\M@sect}
5760   { #9}
5761   { #9%
5762     \print@rightmargin@eledsection%
5763   }
5764 {}
5765 {}
5766
5767 \patchcmd{\M@sect}
5768   {\hskip #3\relax}
5769   {\hskip #3\relax%
5770     \print@leftmargin@eledsection%
5771   }
5772 {}
5773 {}
5774
5775
5776

```

```

5777 \patchcmd{\@mem@old@ssect}
5778   {#5}
5779   {#5%
5780   \print@leftmargin@eledsection%
5781   }
5782   {}
5783   {}
5784
5785 \patchcmd{\@mem@old@ssect}
5786   {\hskip #1}
5787   {\hskip #1%
5788   \print@rightmargin@eledsection%
5789   }
5790   {}
5791   {}
5792
5793
5794 \patchcmd{\chapter}{\if@openright\cleardoublepage\else\clearpage\fi}{%
5795   \if@eled@sectioning\else%
5796     \ifl@dprintingpages\else%
5797       \if@openright\cleardoublepage\else\clearpage\fi}No clearpage inside a \eledsection: wil
5798     \fi%
5799   \fi%
5800 }%
5801 {}%
5802 {}%
5803
5804 \patchcmd{\@makechapterhead}
5805   {#1}
5806   {\print@leftmargin@eledsection%
5807     #1%
5808   \print@rightmargin@eledsection%
5809   }
5810   {}
5811   {}
5812
5813 \patchcmd{\@makechapterhead}% For BIDI
5814   {\if@RTL\raggedleft\else\raggedright\fi}%
5815   {\if@eled@sectioning\else%
5816     \if@RTL\raggedleft\else\raggedright\fi%
5817   \fi%
5818   }%
5819   {}%
5820   {}%
5821
5822 \patchcmd{\@makeschapterhead}
5823   {#1}
5824   {\print@leftmargin@eledsection%
5825     #1%
5826   \print@rightmargin@eledsection%

```



```

5827 }
5828 {}
5829 {}
5830
5831 \pretocmd{\@sect}
5832   {\let\old@edtext=\edtext
5833    \let\edtext=\dummy@edtext@showlemma%
5834   }
5835 {}
5836 {}
5837
5838 \apptocmd{\@sect}
5839   {\let\edtext=\old@edtext}
5840 {}
5841 {}
5842
5843 \pretocmd{\@ssect}
5844   {\let\old@edtext=\edtext%
5845    \let\edtext=\dummy@edtext@showlemma%
5846   }
5847 {}
5848 {}
5849
5850 \apptocmd{\@ssect}
5851   {\let\edtext=\old@edtext}
5852 {}
5853 {}
5854

```

hyperref also redefines \@sect. That's why, when manipulating arguments, we patch \@sect and the same only if hyperref is not used. If it is, we patch the \NR commands.

```

5855 \@ifpackageloaded{nameref}{
5856
5857   \patchcmd{\NR@sect}
5858     {\#8}
5859     {\#8%
5860      \print@rightmargin@eledsection%
5861     }
5862   {}
5863   {}
5864
5865   \patchcmd{\NR@sect}
5866     {\hskip #3\relax}
5867     {\hskip #3\relax%
5868      \print@leftmargin@eledsection%
5869     }
5870   {}
5871   {}
5872

```

```

5873 \patchcmd{\NR@ssect}
5874   {#5}
5875   {#5%
5876   \print@rightmargin@eledsection%
5877   }
5878   {}
5879   {}
5880
5881 \patchcmd{\NR@ssect}
5882   {\hskip #1}
5883   {\hskip #1%
5884   \print@leftmargin@eledsection%
5885   }
5886   {}
5887   {}
5888 }%
5889 {
5890 \patchcmd{\@sect}
5891   {#8}
5892   {#8%
5893   \print@rightmargin@eledsection%
5894   }
5895   {}
5896   {}
5897
5898 \patchcmd{\@sect}
5899   {\hskip #3\relax}
5900   {\hskip #3\relax%
5901   \print@leftmargin@eledsection%
5902   }
5903   {}
5904   {}
5905
5906 \patchcmd{\@ssect}
5907   {#5}
5908   {#5%
5909   \print@rightmargin@eledsection%
5910   }
5911   {}
5912   {}
5913
5914 \patchcmd{\@ssect}
5915   {\hskip #1}
5916   {\hskip #1%
5917   \print@leftmargin@eledsection%
5918   }
5919   {}
5920   {}
5921 }%
5922 }

```

```

5923 \catcode`\# =6 %Space NEEDS by \catcode

\eled@sectioning@out \eled@sectioning@out is the output file, to dump the pstarts where a sectioning
                    command is used.
5924 \newwrite\eled@sectioning@out

\noeledsec The \noeledsec command is deprecated, people should use the noeledsec pack-
           age option.

5925 \newcommand{\noeledsec}{%
5926   \led@war@noeledsecDeprecated%
5927   \global\@noeled@sectrue%
5928 }%

\eledchapter And now, the user sectioning commands, which write to the file, and also add
\eledsection content as a "normal" line.

\eledsubsection 5929 \newcommand{\eledchapter}[2] [] {%
\eledsubsubsection 5930   #2%
  \eledchapter* 5931   \ifledRcol%
    \eledsection* 5932     \immediate\write\eled@sectioningR@out{%
      \eledsubsection* 5933       \string\eled@chapter{#1}{\unexpanded{#2}}{\the\l@dnumpstartsR}{R}
\eledsubsubsection* 5934     }%
    5935   \else%
    5936     \immediate\write\eled@sectioning@out{%
    5937       \string\eled@chapter{#1}{\unexpanded{#2}}{\the\l@dnumpstartsL}{L}
    5938     }%
    5939   \fi%
    5940 }
    5941
    5942 \newcommand{\eledsection}[2] [] {%
    5943   #2%
    5944   \ifledRcol%
    5945     \immediate\write\eled@sectioningR@out{%
    5946       \string\eled@section{#1}{\unexpanded{#2}}{\the\l@dnumpstartsR}{R}
    5947     }%
    5948   \else%
    5949     \immediate\write\eled@sectioning@out{%
    5950       \string\eled@section{#1}{\unexpanded{#2}}{\the\l@dnumpstartsL}{L}
    5951     }%
    5952   \fi%
    5953 }
    5954
    5955 \newcommand{\eledsubsection}[2] [] {%
    5956   #2%
    5957   \ifledRcol%
    5958     \immediate\write\eled@sectioningR@out{%
    5959       \string\eled@subsection{#1}{\unexpanded{#2}}{\the\l@dnumpstartsR}{R}
    5960     }%
    5961   \else%
    5962     \immediate\write\eled@sectioning@out{%

```

```

5963     \string\eled@subsection{#1}{\unexpanded{#2}}{\the\l@dumpstartsL}{-}{-}
5964     }%
5965     \fi%
5966 }
5967 \newcommand{\eledsubsubsection}[2][{}]{%
5968     #2%
5969     \ifledRcol%
5970         \immediate\write\eled@sectioningR@out{%
5971             \string\eled@subsubsection{#1}{\unexpanded{#2}}{\the\l@dumpstartsR}{-}{R}
5972             }%
5973     \else%
5974         \immediate\write\eled@sectioning@out{%
5975             \string\eled@subsubsection{#1}{\unexpanded{#2}}{\the\l@dumpstartsL}{-}{-}
5976             }%
5977     \fi%
5978 }
5979
5980
5981 \WithSuffix\newcommand\eledchapter*[2][{}]{%
5982     #2%
5983     \ifledRcol%
5984         \immediate\write\eled@sectioningR@out{%
5985             \string\eled@chapter{#1}{\unexpanded{#2}}{\the\l@dumpstartsR}{*}{R}
5986             }%
5987     \else%
5988         \immediate\write\eled@sectioning@out{%
5989             \string\eled@chapter{#1}{\unexpanded{#2}}{\the\l@dumpstartsL}{*}{-}
5990             }%
5991     \fi%
5992 }
5993
5994 \WithSuffix\newcommand\eledsection*[2][{}]{%
5995     #2%
5996     \ifledRcol%
5997         \immediate\write\eled@sectioningR@out{%
5998             \string\eled@section{#1}{\unexpanded{#2}}{\the\l@dumpstartsR}{*}{R}
5999             }%
6000     \else%
6001         \immediate\write\eled@sectioning@out{%
6002             \string\eled@section{#1}{\unexpanded{#2}}{\the\l@dumpstartsL}{*}{-}
6003             }%
6004     \fi%
6005 }
6006
6007 \WithSuffix\newcommand\eledsubsection*[2][{}]{%
6008     #2%
6009     \ifledRcol%
6010         \immediate\write\eled@sectioningR@out{%
6011             \string\eled@subsection{#1}{\unexpanded{#2}}{\the\l@dumpstartsR}{*}{R}
6012             }%

```

```

6013 \else%
6014   \immediate\write\eled@sectioning@out{%
6015     \string\eled@subsection{#1}{\unexpanded{#2}}{\the\l@dnumpstartsL}{*}{%
6016       }%
6017   \fi%
6018 }
6019
6020 \WithSuffix\newcommand\eledsubsubsection*[2] [] {%
6021   #2%
6022   \ifledRcol%
6023     \immediate\write\eled@sectioningR@out{%
6024       \string\eled@subsubsection{#1}{\unexpanded{#2}}{\the\l@dnumpstartsR}{*}{R}%
6025     }%
6026   \else%
6027     \immediate\write\eled@sectioning@out{%
6028       \string\eled@subsubsection{#1}{\unexpanded{#2}}{\the\l@dnumpstartsL}{*}{%
6029       }%
6030     \fi%
6031 }

```

<pre> \eled@chapter \eled@section \eled@subsection \eled@subsubsection </pre>	<p>The sectioning macros, called in the auxiliary file. They have five arguments:</p> <ol style="list-style-type: none"> <li>1. Optional arguments of L<sup>A</sup>T<sub>E</sub>X sectioning command.</li> <li>2. Mandatory arguments of L<sup>A</sup>T<sub>E</sub>X sectioning command.</li> <li>3. Pstart number.</li> <li>4. Side: R if right, nothing if left.</li> <li>5. Starred or not.</li> </ol>
---	---

```

6032 \def\eled@chapter#1#2#3#4#5{%
6033   \ifstrempy{#4}%
6034   {%
6035     \ifstrempy{#1}%
6036     {%
6037       \global\csdef{eled@sectioning@#3#5}{\let\edtext=\dummy@edtext@showlemma\chapter{#2}}%
6038       \global\csdef{eled@sectmark@#3#5}{\let\edtext=\dummy@edtext{}\chaptermark{#2}}%
6039       }%Need for \pairs, because of using parbox.
6040     {%
6041       \global\csdef{eled@sectioning@#3#5}{\let\edtext=\dummy@edtext@showlemma\chapter[#1]{#2}}%
6042       \global\csdef{eled@sectmark@#3#5}{\let\edtext=\dummy@edtext{}\chaptermark{#2}}%Need for \pairs, b
6043     }%
6044   }%
6045   {%
6046     \ifstrempy{#1}%
6047     {\global\csdef{eled@sectioning@#3#5}{\let\edtext=\dummy@edtext@showlemma\chapter*{#2}}}%
6048     {\global\csdef{eled@sectioning@#3#5}{\let\edtext=\dummy@edtext@showlemma\chapter*{#1}{#2}}}%Bug
6049   }%
6050   \listcsadd{eled@sections#5@@}{#3}%

```

```

6051     }
6052 \def\eled@section#1#2#3#4#5{%
6053     \ifstrempy{#4}%
6054     {\ifstrempy{#1}%
6055     {%
6056         \global\csdef{eled@sectioning@#3#5}{\section{#2}}%
6057         \global\csdef{eled@sectmark@#3#5}{\let\edtext=\dummy@edtext{}\sectionmark{#2}}%Need 1
6058     }%
6059     {%
6060         \global\csdef{eled@sectioning@#3#5}{\section[#1]{#2}}%
6061         \global\csdef{eled@sectmark@#3#5}{\let\edtext=\dummy@edtext{}\sectionmark{#1}}%Need 1
6062     }%
6063     }%
6064     {\ifstrempy{#1}%
6065     {\global\csdef{eled@sectioning@#3#5}{\section*{#2}}}%
6066     {\global\csdef{eled@sectioning@#3#5}{\section*{#1}{#2}}}%Bug in LaTeX!
6067     }
6068     \listcsadd{eled@sections#5@@}{#3}%
6069     }
6070 \def\eled@subsection#1#2#3#4#5{%
6071     \ifstrempy{#4}%
6072     {\ifstrempy{#1}%
6073     {%
6074         \global\csdef{eled@sectioning@#3#5}{\subsection{#2}}%
6075         \global\csdef{eled@sectmark@#3#5}{\let\edtext=\dummy@edtext{}\csuse{subsectionmark}}%
6076     }%
6077     {%
6078         \global\csdef{eled@sectioning@#3#5}{\subsection[#1]{#2}}%
6079         \global\csdef{eled@sectmark@#3#5}{\let\edtext=\dummy@edtext{}\csuse{subsectionmark}}%
6080     }%
6081     }%
6082     {\ifstrempy{#1}%
6083     {\global\csdef{eled@sectioning@#3#5}{\subsection*{#2}}}%
6084     {\global\csdef{eled@sectioning@#3#5}{\subsection*{#1}{#2}}}%Bug in LaTeX!
6085     }
6086     \listcsadd{eled@sections#5@@}{#3}%
6087     }
6088 \def\eled@subsubsection#1#2#3#4#5{%
6089     \ifstrempy{#4}%
6090     {\ifstrempy{#1}%
6091     {\global\csdef{eled@sectioning@#3#5}{\subsubsection{#2}}}%
6092     {\global\csdef{eled@sectioning@#3#5}{\subsubsection[#1]{#2}}}%
6093     }%
6094     {\ifstrempy{#1}%
6095     {\global\csdef{eled@sectioning@#3#5}{\subsubsection*{#2}}}%
6096     {\global\csdef{eled@sectioning@#3#5}{\subsubsection*{#1}{#2}}}%Bug in LaTeX!
6097     }
6098     \listcsadd{eled@sections#5@@}{#3}%
6099     }
6100

```

End of the conditional test about `noeledsec` option.

```
6101 }{}
```

## 45 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.

```
6102 \def\normal@page@break{}
```

`\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.

```
6103 \def\l@prev@pb{}
```

```
6104 \def\l@prev@nopb{}
```

`\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.

```
6105 \newcommand{\ledpb}{\write\linenum@out{\string\led@pb}}
```

```
6106 \newcommand{\ledpbnum}[1]{\write\linenum@out{\string\led@pbnum{#1}}}
```

```
6107 \newcommand{\lednopb}{\write\linenum@out{\string\led@nopb}}
```

```
6108 \newcommand{\lednopbnum}[1]{\write\linenum@out{\string\led@nopbnum{#1}}}
```

`\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.

```
6109 \newcommand{\led@pb}{\listxadd{\l@prev@pb}{\the\absline@num}}
```

```
6110 \newcommand{\led@pbnum}[1]{\listxadd{\l@prev@pb}{#1}}
```

```
6111 \newcommand{\led@nopb}{\listxadd{\l@prev@nopb}{\the\absline@num}}
```

```
6112 \newcommand{\led@nopbnum}[1]{\listxadd{\l@prev@nopb}{#1}}
```

`\ledpbsetting` The `\ledpbsetting` macro only changes the value of `\led@pb@macro`, for which `\led@pb@setting` the default value is `before`.

```
6113 \def\led@pb@setting{before}
```

```
6114 \newcommand{\ledpbsetting}[1]{\gdef\led@pb@setting{#1}}
```

`\led@check@pb` The `\led@check@pb` and `\led@check@nopb` are called before or after each line.  
`\led@check@nopb` They check if a page break must occur, depending on the current line and on the content of `\l@pb`.

```

6115 \newcommand{\led@check@pb}{\xifinlist{\the\absline@num}{\l@prev@pb}{\pagebreak[4]}{}}
6116 \newcommand{\led@check@nopb}{%
6117   \IfStrEq{\led@pb@setting}{before}{%
6118     \xifinlist{\the\absline@num}{\l@prev@nopb}%
6119     {\numdef{\abs@prevline}{\the\absline@num-1}%
6120     \xifinlist{\abs@prevline}{\normal@page@break}%
6121     {\nopagebreak[4]\enlargethispage{\baselineskip}}%
6122     {}}%
6123   }%
6124   {}%
6125 }%
6126 \IfStrEq{\led@pb@setting}{after}{%
6127   \xifinlist{\the\absline@num}{\l@prev@nopb}{%
6128     \xifinlist{\the\absline@num}{\normal@page@break}%
6129     {\nopagebreak[4]\enlargethispage{\baselineskip}}%
6130     {}%
6131 }%
6132   {}%
6133   {}%
6134   {}%
6135 }

```

## 46 Long verse: prevents being separated by a page break

`\iflednopbinverse` The `\lednopbinverse` boolean is set to false by default. If set to true, `eledmac` 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.

```

6136 \newcommand{\check@pb@in@verse}{%
6137   \ifinstanza\iflednopbinverse\ifinserthangingsymbol% Using stanzas and enabling page break
6138   \ifnum\page@num=\last@page@num\else%If we have change page
6139     \IfStrEq{\led@pb@setting}{before}{%
6140       \numgdef{\abs@line@verse}{\the\absline@num-1}%
6141       \ledpbnum{\abs@line@verse}%
6142     }{}%
6143     \IfStrEq{\led@pb@setting}{after}{%

```



```

6144         \numgdef{\abs@line@verse}{\the\absline@num-1}%
6145         \lednopbnum{\abs@line@verse}%
6146     }\fi}%
6147     \fi%
6148     \fi\fi\fi%
6149 }

```

## 47 The End

</code>

## Appendix A Some things to do when changing version

### Appendix A.1 Migrating from edmac

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 ededmac.

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:

<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>	<u>1–2 I saw my friend</u>
<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.)

<sup>35</sup>A name like `\text` is likely to be defined by other L<sup>A</sup>T<sub>E</sub>X packages (it certainly is by the AMS packages) and it seems sensible to try and avoid clashes with other definitions.

The second argument of the `\critext` macro,  $\langle commands \rangle$ , 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:

```
\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 section 22 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 for easy customization. This can cause problems for people who have made their own customizations. The next sections explain how to correct this.

If you have created your own series using `\addfootins` and `\addfootinsX`, you should use instead the `\newseries` command (see 5.7.1 p. 34). You must remove your `\Xfootnote` command.

If you have customized the `\XXXXXfmt` command, you should check if commands for display options (5.4 p. 25) and options in `\Xfootnote` (5.1.2 p. 19) cannot do the same thing. If not, you can add a new ticket in 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 eledmac new functions, you can continue using your own `\XXXXXfmt` command, but you must replace:

```
\renewcommand*{XXXXfmt}[3]
```

---

<sup>36</sup><https://github.com/maieul/ledmac/issues>

with

```
\renewcommand*{XXXXfmt}[4][4=Z]
```

If you don't do that, you will see 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`. If you don't, the command after the `\protect` won't be displayed.

### Appendix A.3 Migration to eledmac 1.5.1

The version 1.5.1 corrects a bug with `stanzaindentrepetition` (cf. 6.1 p. 35). This bug had two consequences:

1. `stanzaindentrepetition` didn't work when its value was greater than 2.
2. `stanzaindentrepetition` worked wrong when its value was equal to 2.

So, if you used `stanzaindentrepetition` with value equal to 2, you must change your `\setstanzaindent`. Explanation:

```
\setcounter{stanzaindentrepetition}{2}
\setstanzaindent{5,1,0}
```

This code, in a version older than 1.5.1, made that the first verse had an indent of 0, the second verse of 1, the third verse of 0, the fourth verse of 1 etc.

But instead the code should have assigned the reverse: the first verse had an indent of 1, the second verse of 0, the third verse of 1, the fourth verse of 0 etc.

So version 1.5.1 corrected this bug. If you want to keep the older presentation, you must change:

```
\setcounter{stanzaindentrepetition}{2}
\setstanzaindent{5,1,0}
```

by:

```
\setcounter{stanzaindentrepetition}{2}
\setstanzaindent{5,0,1}
```

### Appendix A.4 Migration to eledmac 1.12.0

The migration to eledmac 1.12.0 is easy:

- You must delete all the auxiliary files, and so one, make the normal three runs.
- If you have modified `\l@reg`, which is not advisable, you must rename it to `\@nl@reg`.

Anyway, there is another problem. If you have text in brackets just after `\pstart` or `\pend`, the text will be considered an optional argument of `\pstart` or `\pend` (see 4.2.2 p. 13). In this case, just add a `\relax` between `\pstart`/`\pend` and the brackets.

The version 1.12.0 adds a new better way to manage section titles inside numbered text. Please read § 14.2 (14.2 p. 49).

## Appendix A.5 Migration to eledmac 17.1

The version change the default behavior of `\pstartinfootnote`. Henceforth, the `pstart` will be printed if footnote only for the section of text where you have called `\numberpstarttrue`.

We don't see any reason to print it in other section. However, if you want to print the `pstart` number in all footnote, with or without `\numberpstarttrue`, you can use `\pstartinfootnoteeverytime`.

## Appendix A.6 Migration to eledmac 1.21.0

### Appendix A.6.1 `\Xledsetnormalparstuff` and `\ledsetnormalparstuffX`

The `\ledsetnormalparstuff` has been split in two different commands:

- `\Xledsetnormalparstuff` for critical notes;
- `\ledsetnormalparstuffX` for familiar notes.

The new commands take an optional argument which is the series letter. If you have redefined `\ledsetnormalparstuff` or commands which call them, you must make the appropriate change

### Appendix A.6.2 Endnotes

In any case, clean the `.end` file before the next run.

The previous version of `eledmac` had a bug: there were two spaces between the start page number and the start line number, but only one space between the end page number and the end line number.

Indeed, 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, just load the package with the `oldprintnpnumspace` option.

If you have redefined `\endprint`, you must:

- Contact us to 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` commands takes now a first optional argument, which is the label for the hyperreference. If you have redefined it, change your redefinition, and check if you can avoid this redefinition by redefining only `\ledinnotemark`.

### **Appendix A.8 Migration to eledmac 1.23.0**

People must delete the numbered auxiliary file before new run after update of eledmac.

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

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<code>\Xendnotenumfont</code>	29
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<code>\zz@@@</code>	<u>3892</u> , 3903, 3916, 4033, 4038

## Change History

v0.1.0.	
General: First public release	1
v0.2.0.	
General: Added tabmac code, and extended indexing	1
<code>\eledmac@error</code> : Added <code>\eledmac@error</code> and replaced error messages	57
<code>\ifl@dmemoir</code> : Added <code>\ifl@dmemoir</code> for memoir class having been used	56
<code>\morenoexpands</code> : Added <code>\l@dtabnoexpands</code> to <code>\no@expands</code>	92
v0.2.1.	
<code>\@lab</code> : Removed page setting from <code>\@lab</code>	191
General: Added text about normal labeling	40
Bug fixes and match with mempatch v1.8	1
Major changes to insert code when memoir is loaded	186
<code>\doxtrafeet</code> : Renamed <code>\doxtrafeet</code> to <code>\l@ddoxtrafeet</code>	185
<code>\edlabel</code> : Tweaked <code>\edlabel</code> to get correct page numbers	190
<code>\l@d@makecol</code> : Rewrote <code>\@makecol</code> , calling it <code>\l@d@makecol</code>	184
<code>\l@ddodoreinxtrafeet</code> : Renamed <code>\dodoreinxtrafeet</code> to <code>\l@ddodoreinxtrafeet</code>	186
<code>\l@ddofootinsert</code> : Renamed <code>\dofootinsert</code> as <code>\l@ddofootinsert</code>	184
<code>\m@m@makecolintro</code> : Added <code>\m@m@makecolfloats</code> , <code>\m@m@makecoltext</code> and <code>\m@m@makecolintro</code>	184
<code>\morenoexpands</code> : Removed some <code>\lets</code> from <code>\no@expands</code> . These were in EDMAC but I feel that they should not have been as they disabled page/line refs in a footnotes	92
<code>\zz@@@</code> : Minor change to <code>\zz@@@</code>	189
v0.2.2.	
General: Improved paragraph footnotes	1
New Dekker example	1
Used <code>\providecommand</code> for <code>\@gobblethree</code> to avoid clash with the amsfonts package	61
<code>\footfudgefiddle</code> : Added <code>\footfudgefiddle</code>	134
<code>\line@list@stuff</code> : Added initial write of page number in <code>\line@list@stuff</code>	86
<code>\para@footsetup</code> : Added <code>\footfudgefiddle</code> to <code>\para@footsetup</code>	134
<code>\para@footsetupX</code> : Added <code>\footfudgefiddle</code> to <code>\para@footsetupX</code>	154
v0.3.0.	
<code>\@lab</code> : Replaced <code>\the\line@num</code> by <code>\linenumr@p\line@num</code> in <code>\@lab</code> , and similar for sub-lines	191
<code>\@nl@reg</code> : Added a bunch of code to <code>\@nl</code> for handling <code>\setlinenum</code>	78
General: Includes edstanza and more	1
<code>\ledlinenum</code> : Added <code>\linenumr@p</code> and <code>\sublinenum@rep</code> to <code>\leftlinenum</code> and <code>\rightlinenum</code>	69
<code>\linenumberlist</code> : Added <code>\linenumberlist</code> mechanism	61
<code>\printendlines</code> : Added <code>\linenumr@p</code> and <code>\sublinenumr@p</code> to <code>\printendlines</code>	165
<code>\printlines</code> : Added <code>\linenumr@p</code> and <code>\sublinenumr@p</code> to <code>\printlines</code>	129
<code>\sublinenumr@p</code> : Added <code>\linenumberstyle</code> and <code>\sublinenumberstyle</code>	69
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 .....	204
General: Added final/draft options .....	55
Added minipage, etc., support .....	1
ledgroup: Added ledgroup environment .....	205
ledgroupsize: Added ledgroupsize environment .....	205
\edtext: Added \showlemma to \edtext (and \critext) .....	93
\footnormal: Added minipage footnote setup to \footnormal .....	133
\l@dfeetendmini: Added \l@dfeetbeginmini, \l@dfeetendmini and all their supporting code .....	203
\mpnormalfootgroup: Added \mpnormalfootgroup .....	131
\mpnormalvfootnote: Added \mpnormalvfootnote .....	123
\showlemma: Added \showlemma .....	61

## v0.4.1.

General: Added code for changing \@docclearpage .....	187
Not released. Minor editorial improvements and code tweaks .....	1
Only change \@footnotetext and \@footnotemark if memoir not used ...	145
\doxtrafeetii: Changed \doxtrafeetii code for easier extensions .....	185
\edindex: Let eledmac take advantage of memoir's indexing .....	209
\print@Xnotes: Added \@opxtrafeetii .....	185

## v0.5.0.

\@footnotetext: Enabled regular \footnote in numbered text .....	146
\@xympar: Eliminated \marginpar disturbance .....	197
General: Added left and right side notes .....	197
Added sidenotes, familiar footnotes in numbered text .....	1

## v0.5.1.

General: Added moveable side note .....	197
Fixed right line numbers killed in v0.5 .....	1
\affixline@num: Changed \affixline@num to cater for sidenotes .....	113
ledgroupsize: Only change \hsize in ledgroupsize environment otherwise page number can be in wrong place .....	205
\l@dgetsidenote@margin: Added \sidenotemargin and \sidenote@margin ..	197

## v0.6.0.

\@lopR: Added \@pend, \@pendR, \@lopL and \@lopR in anticipation of parallel processing .....	79
\@nl@reg: Added \fix@page to \@nl .....	78
Extended \@nl to include the page number .....	78
General: Fixed long paragraphs looping .....	1
Fixed minor typos .....	1
Prepared for eledpar package .....	1
\fix@page: Added \last@page@num and \fix@page .....	79
\new@line: Extended \new@line to output page numbers .....	86
\page@start: Made \page@start a no-op .....	87
\vl@dbfnote: Changed \l@dbfnote and \vl@dbfnote as originals could give incorrect markers in the footnotes .....	146

## v0.7.0.

\@nl@reg: Added \@nl@reg .....	78
\@ref@reg: Added \@ref@reg .....	83

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 .....	57
Replaced all <code>\interfootnotelinepenalty</code> , etc., by just <code>\interfootnotelinepenalty</code> .....	1
Tidying up for eledpar and ledarab packages .....	1
<code>\affixline@num</code> : Added skipnumering to <code>\affixline@num</code> .....	113
<code>\do@actions@fixedcode</code> : Added <code>\do@actions@fixedcode</code> .....	112
<code>\do@actions@next</code> : Added number skipping to <code>\do@actions</code> .....	111
<code>\do@insidelinehook</code> : Added <code>\do@linehook</code> for use in <code>\do@line</code> .....	109
<code>\endnumbering</code> : Changed <code>\endnumbering</code> for eledpar .....	64
<code>\fx@l@cks</code> : Added <code>\ch@cksub@l@ck</code> , <code>\ch@ck@l@ck</code> and <code>\fx@l@cks</code> .....	115
<code>\footplitskips</code> : Added <code>\footplitskips</code> for use in many footnote styles ..	123
<code>\get@linelistfile</code> : Added <code>\get@linelistfile</code> .....	76
<code>\ifledRcol@</code> : Added <code>\l@dunpstartsL</code> , <code>\ifl@dpairing</code> and <code>\ifpst@rted</code> for/from eledpar .....	62
<code>\initnumbering@reg</code> : Added <code>\initnumbering@reg</code> .....	63
<code>\l@dcsnotetext@r</code> : Added <code>\l@demptyd@ta</code> .....	109
<code>\l@ddofootinsert</code> : Deleted <code>\page@start</code> from <code>\l@ddofootinsert</code> .....	184
<code>\l@dgetline@margin</code> : Added <code>\l@dgetline@margin</code> .....	67
<code>\l@dgetlock@disp</code> : Added <code>\l@dgetlock@disp</code> .....	68
<code>\l@dgetsidenote@margin</code> : Added <code>\l@dgetsidenote@margin</code> .....	197
<code>\l@drsn@te</code> : Added <code>\l@dlsn@te</code> and <code>\l@drsn@te</code> for use in <code>\do@line</code> .....	110
<code>\l@dunboxmpfoot</code> : Added <code>\l@dunboxmpfoot</code> containing some common code ..	205
<code>\l@dzeropenalties</code> : Added <code>\l@dzeropenalties</code> .....	106
<code>\ledlinenum</code> : Added <code>\ledlinenum</code> for use by <code>\leftlinenum</code> and <code>\rightlinenum</code>	69
<code>\line@list@stuff</code> : Deleted <code>\page@start</code> from <code>\line@list@stuff</code> .....	86
<code>\list@clearing@reg</code> : Added <code>\list@clearing@reg</code> .....	76
<code>\n@num</code> : Added <code>\n@num</code> .....	82
<code>\normalbfnoteX</code> : Removed extraneous space from <code>\normalbfnoteX</code> .....	149
<code>\resumenumbering</code> : Changed <code>\resumenumbering</code> for eledpar .....	65
<code>\setprintendlines</code> : Added <code>\setprintendlines</code> for use by <code>\printendlines</code> ..	164
<code>\setprintlines</code> : Added <code>\setprintlines</code> for use by <code>\printlines</code> .....	128
<code>\skipnumbering</code> : Added <code>\skipnumbering</code> and supports .....	89
<code>\sublinenumincrement</code> : Added <code>\firstlinenum</code> , <code>\linenumincrement</code> , <code>\firstsublinenum</code> and <code>\linenumincrement</code> .....	68
<code>\sublinenumr@p</code> : Using <code>\linenumrep</code> instead of <code>\linenumr@p</code> .....	69
Using <code>\sublinenumrep</code> instead of <code>\sublinenumr@p</code> .....	69
<code>\vnumfootnoteX</code> : Removed extraneous space from <code>\vnumfootnoteX</code> .....	149
v0.8.0.	
General: Bug on endnotes fixed: in a <code>//</code> text, all endnotes will print and be placed at the ends of columns () .....	1
v0.8.1.	
General: Bug on <code>\edtext</code> ; <code>\critex</code> ; <code>\lemma</code> fixed: we can now us non-switching commands .....	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 <code>\section</code> 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 typography. Redefines the command <code>\hangingsymbol</code> to define the character. . . . .	1
v0.12.0.	
General: For compatibility with <code>eledpar</code> , possibility to use <code>\autopar</code> on the right side. . . . .	1
Possibility to number <code>\pstart</code> . . . . .	14
Possibility to number the <code>pstart</code> with the commands <code>\numberpstarttrue</code> . . . . .	1
<code>\ifledRcol@</code> : Added <code>\ifledRcol</code> and <code>\ifnumberingR</code> for/from <code>eledpar</code> . . . . .	62
v0.12.1.	
General: Don't number <code>\pstarts</code> of stanza. . . . .	1
The numbering of <code>\pstarts</code> restarts on each <code>\beginnumbering</code> . . . . .	1
v0.13.0.	
General: New <code>stanzaindentsrepetition</code> counter to repeat stanza indents every $n$ verses. . . . .	35
New <code>stanzaindentsrepetition</code> counter: to repeat stanza indents every $n$ verses. . . . .	1
<code>\managestanza@modulo</code> : New <code>stanzaindentsrepetition</code> counter to repeat stanza indents every $n$ verses. . . . .	219
v0.13.1.	
General: <code>\thepstartL</code> and <code>\thepstartR</code> use now <code>\bfseries</code> and not <code>\bf</code> , which is deprecated and makes conflicts with <code>memoir</code> class. . . . .	1
v0.14.0.	
General: Tweaked <code>\edlabel</code> to get correct line number if the command is first element of a paragraph. . . . .	1
<code>\edlabel</code> : Tweaked <code>\edlabel</code> to get correct line number if the command is first element of a paragraph. . . . .	190
v0.15.0.	
General: Line numbering can be reset at each <code>pstart</code> . . . . .	65
Possibility to print <code>\pstart</code> number inside. . . . .	15
<code>\affixline@num</code> : Line numbering can be disabled. . . . .	113
<code>\ifinserthangingsymbol</code> : New management of <code>hangingsymbol</code> insertion, preventing undesirable insertions. . . . .	218
<code>\printlines</code> : Line numbering can be reset at each <code>pstart</code> . . . . .	129
v0.17.0.	
<code>\ifinserthangingsymbol</code> : New new management of <code>hangingsymbol</code> insertion, preventing undesirable insertions. . . . .	218
v1.0.0.	
General: <code>\lemma</code> can contain commands. . . . .	21
Debug in lineation command . . . . .	16
New generic commands to customize footnote display. . . . .	25, 174
Options <code>nonum</code> and <code>nosep</code> in <code>\Xfootnote</code> . . . . .	19
Options of <code>\Xfootnotes</code> . . . . .	121
Possibility to have commands in sidenotes. . . . .	41
Some compatibility break with <code>eledmac</code> . Change of name: <code>eledmac</code> . . . . .	1
<code>\morenoexpands</code> : Change to be compatible with new features . . . . .	92
v1.0.1.	
General: Correction on <code>\numberonlyfirstinline</code> with lineation by <code>pstart</code> or by page. . . . .	25

v1.1.0.	
General: Add <code>\labelstarttrue</code> .	15
Add <code>\numberonlyfirstintwolines</code>	25
Add <code>\pstartinfootnote</code> and <code>\onlypstartinfootnote</code>	26
New hook to add arbitrary code at the beginning of the notes	30
New options for block of notes.	31
New package option: <code>parapparatus</code> .	1
New tools to change order of series	173
Sectioning commands.	48
<code>\ledfootinsdim</code> : Deprecated <code>\ledfootinsdim</code>	132
<code>\preXnotes</code> : New skip <code>\preXnotes@</code>	132
<code>\settoggle@series</code> : <code>\settoggle@series</code> switch the global value of the toggle, not only the local value.	174
v1.2.0.	
<code>\endquote</code> : Compatibility of <code>\ledchapter</code> with the <i>memoir</i> class.	242
<code>\preXnotes</code> : Debug in familiar footnotes (but introduced by v1.1).	132
v1.3.0.	
<code>\endquote</code> : <i>Quotation</i> and quote environment inside numbered sections.	242
v1.4.0.	
General: Compatibility with LuaTeX of RTL notes.	1
<code>\edtext</code> : Compatibility of <code>\edtext</code> (and <code>\critext</code> ) with the right-to-left direction (with Polyglossia).	93
<code>\newsseries@</code> : Remembers the language of the lemma, in order to create a correct direction for the footnote separator.	169
<code>\normalfootfmt</code> : Direction of footnotes with polyglossia.	124
<code>\rbracket</code> : Switch the right bracket to a left bracket when the lemma is RTL (needs polyglossia or LuaTeX).	125
v1.4.1.	
<code>\affixside@note</code> : Remove spurious spaces.	201
<code>\endquote</code> : New option <i>noquotation</i> .	242
<code>\labelrefsparsesubline</code> : Fix bug with <code>\edlabel</code> .	190
<code>\vl@dbfnote</code> : Compatibility of standard footnotes with <code>eledmac</code> when these footnotes contain any commands.	146
v1.4.2.	
General: Debug with some special classes.	1
v1.4.3.	
General: Add <code>\nonbreakableafternumber</code> .	27
Spurious space after familiar footnotes.	1
v1.4.4.	
General: Label inside familiar footnotes.	1
v1.4.5.	
General: Bug with <code>komasscript</code> + <code>eledpar</code> + <code>chapter</code> .	1
v1.4.6.	
General: Bug with <code>memoir</code> class introduced by 1.4.5.	1
v1.4.7.	
<code>\endquote</code> : Compatibility of sectioning commands with <code>\autopar</code> .	242
v1.4.8.	
General: Corrects a bug with parallel texts introduced by 1.1.	1

v1.4.9.	
\normalbfnoteX:	Allow to redefine \thefootnoteX with alph when some packages are loaded. . . . . 149
v1.5.0.	
General:	Correct indexing when the call is made in critical notes. . . . . 206
\do@insidelinehook:	Added \do@insidelinehook for use in \do@line . . . . . 109
\edindex:	Compatibility with imakeidx package, and possibility to use multiple index with \edindex. . . . . 209
\iffN@bottom:	Use the bottom option of footmisc package. . . . . 184
v1.5.1.	
\managestanza@modulo:	Correct stanzaindentsrepetition counter . . . . . 219
\normalvfootnoteX:	Fix bug with normal familiar footnotes when mixing RTL and LTR text. . . . . 147
v1.6.0.	
\falseverse:	Add \falseverse macro. . . . . 221
v1.6.1.	
General:	Corrects a false hanging verse when a verse is exactly the length of a line. 1
\AtEveryPstart:	Spurious space in \pstart. . . . . 103
\ifinserthangingsymbol:	Hang verse is now not automatically flush right. . . 218
\ldunhbox@line:	Move the call to \inserthangingsymbol to allow use \hfill inside. . . . . 107
\pend:	Spurious space in \pend. . . . . 105
v1.7.0.	
General:	New features for managing page breaks. . . . . 50
v1.8.0.	
General:	Compatibility with parledgroup option of eledpar package. . . . . 1
If imakeidx and hyperref	are loaded, adds hyperref in the index. . . . . 206
\endquote:	Correction of sectioning commands in parallel texts. . . . . 242
\get@index@command:	Debug \get@index@command and compatibility with hyperref package. . . . . 208
\newhookcommand@series@reload:	Debug \beforenotesX and \maxhnotesX which didn't work. . . . . 176
\prevpage@num:	Correct \parafootsep when using with ledgroup. . . . . 139
v1.8.1.	
General:	Debug endnotes when more than one series is used (change the position where tools for endnotes are defined). . . . . 162
v1.8.2.	
General:	Debug compatibility problem with hebrew option of babel package. . . . 1
v1.8.3.	
General:	Fixes spurious spaces added by v1.7.0. . . . . 1
v1.8.5.	
General:	Debug indexing in right column, with eledpar. . . . . 206
v1.9.0.	
\doxtrafeet:	Add \fnpos to choice the order of footnotes. . . . . 185
\lddfeetendmini:	Add \mpfnpos to choice the order of footnotes in minipage / ledgroup. . . . . 203
v1.10.0.	
General:	Add \pstartref and \xpstartref to refer to a pstart number (extension of \edlabel). . . . . 1
\endquote:	Correction of sectioning commands in parallel texts. . . . . 242



v1.10.1.	
General: Compatibility with <code>cleveref</code> .	1
v1.10.2.	
General: Compatibility of stanza with v1.8a of <code>babel-greek</code> .	1
v1.10.3.	
General: Debug of cross-referencing.	1
v1.10.4.	
General: Debug of critical notes in <code>edtabular</code> environment.	1
v1.10.5.	
General: Debug of <code>\pausenumbering</code> .	1
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