

Parallel typesetting for critical editions: the **eledpar** package*

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Abstract

The **eledmac** package, which is based on the PLAIN T_EX set of EDMAC macros, has been used for some time for typesetting critical editions. The **eledpar** package is an extension to **eledmac** which enables texts and their critical apparatus to be typeset in parallel, either in two columns or on pairs of facing pages.

Note that before September 2012, **eledpar** was called **ledpar**. The changes from **ledmac/ledpar** to **eledmac/eledpar** is explained in **ledmac** documentation.

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1 Introduction

The `EDMAC` macros [LW90] for typesetting critical editions of texts have been available for use with TeX for some years. Since `EDMAC` became available there had been a small but constant demand for a version of `EDMAC` that could be used with LaTeX. The `eledmac` package was introduced in 2003 in an attempt to satisfy that request.

Some critical editions contain texts in more than one form, such as a set of verses in one language and their translations in another. In such cases there is a desire to be able to typeset the two texts, together with any critical apparatus, in parallel. The `eledpar` package is an extension to `eledmac` that enables two texts and their apparatus to be set in parallel, either in two columns or on pairs of facing pages.

The package has to try and coerce TeX into paths it was not designed for. Use of the package, therefore, may produce some surprising results.

This manual contains a general description of how to use `eledpar` starting in section 2; the complete source code for the package, with extensive documentation (in sections 8 through 26); and an Index to the source code. As `eledpar` is an adjunct to `eledmac` I assume that you have read the `eledmac` manual. Also `eledpar` requires `eledmac` to be used, preferably at least version 0.10 (2011/08/22). You do not need to read the source code for this package in order to use it but doing so may help to answer any questions you might have. On a first reading, I suggest that you should skip anything after the general documentation in sections 2 until 8, unless you are particularly interested in the innards of `eledpar`.

2 The *eledpar* package

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.

The *eledpar* package lets you typeset two *numbered* texts in parallel. This can be done either as setting the ‘Leftside’ and ‘Rightside’ texts in two columns or on facing pages. In the paired pages case footnotes are placed at the bottom of the page on which they are called out — that is, footnotes belonging to the left are set at the foot of a left (even numbered) page, and those for right texts are at the bottom of the relevant right (odd numbered) page. However, in the columnar case, all footnotes are set at the bottom left of the page on which they are called out — they are not set below the relevant column. The line numbering schemes need not be the same for the two texts.

2.1 General

eledmac essentially puts each chunk of numbered text (the text within a `\pstart ... \pend`) into a box and then following the `\pend` extracts the text line by line from the box to number and print it. More precisely, the text is first put into the box as though it was being typeset as normal onto a page and any notes are stored without being typeset. Then each typeset line is extracted from the box and any notes for that line are recalled. The line, with any notes, is then output for printing, possibly with a line number attached. Effectively, all the text is typeset and then afterwards all the notes are typeset.

eledpar similarly puts the left and right chunks into boxes but can't immediately output the text after a `\pend` — it has to wait until after both the left and right texts have been collected before it can start processing. This means that several boxes are required and possibly TeX has to store a lot of text in its memory; both the number of potential boxes and memory are limited. If TeX's memory is overfilled the recourse is to reduce the amount of text stored before printing.

It is possible to have multiple chunks in the left and right texts before printing them. The macro `\maxchunks{\langle num \rangle}` specifies the maximum number of chunks within the left or right texts. This is initially set as:

`\maxchunks{5120}`

meaning that there can be up to 5120 chunks in the left text and up to 5120 chunks in the right text, requiring a total of 10240 boxes. If you need more chunks then you can increase `\maxchunks`. The `\maxchunks` must be called in the preamble.

TeX has a limited number of boxes; if you get an error message along the lines of ‘no room for a new box’, then load the package *etex*, which needs *pdflatex* or *xelatex*. If you `\maxchunks` is too little you can get a *eledmac* error message along the lines: ‘Too many `\pstart` without printing. Some text will be lost.’ then you will have to either increase `\maxchunks` or use the parallel printing commands

`\maxchunks`

(\Columns or \Pages) more frequently.

When typesetting verse using \syntax, each line is treated as a chunk, so be warned that if you are setting parallel verses you might have to increase \maxchunks much more than it appears at first sight.

In general, `eledmac` is a TeX resource hog, and `eledpar` only makes things worse in this respect.

3 Parallel columns

pairs Numbered text that is to be set in columns must be within a `pairs` environment. Within the environment the text for the lefthand and righthand columns is placed within the `Leftside` and `Rightside` environments, respectively; these are described in more detail below in section 5.

\Columns The command \Columns typesets the texts in the previous pair of `Leftside` and `Rightside` environments. The general scheme for parallel columns looks like this:

```
\begin{pairs}
\begin{Leftside} ... \end{Leftside}
\begin{Rightside} ... \end{Rightside}
\Columns
\begin{Leftside} ... \end{Leftside}
...
\Columns
\end{pairs}
```

There is no required pagebreak before or after the columns.

\Lcolwidth The lengths \Lcolwidth and \Rcolwidth are the widths of the left and right columns, respectively. By default, these are:

```
\setlength{\Lcolwidth}{0.45\textwidth}
\setlength{\Rcolwidth}{0.45\textwidth}
```

They may be adjusted if one text tends to be ‘bulkier’ than the other.

\columnrulewidth The macro \columnseparator is called between each left/right pair of lines. By default it inserts a vertical rule of width \columnrulewidth. As this is initially defined to be 0pt the rule is invisible. For a visible rule between the columns you could try:

```
\setlength{\columnrulewidth}{0.4pt}
```

You can also modify \columnseparator if you want more control. When you use \stanza, the visible rule may shift when a verse has a hanging indent. To prevent shifting, use \setstanzaindents outside the `Leftside` or `Rightside` environment.

4 Facing pages

pages Numbered text that is to be set on facing pages must be within a `pages` environment.

ment. Within the environment the text for the lefthand and righthand pages is placed within the **Leftside** and **Rightside** environments, respectively.

\Pages

The command \Pages typesets the texts in the previous pair of **Leftside** and **Rightside** environments. The general scheme for parallel pages looks like this:

```
\begin{pages}
\begin{Leftside} ... \end{Leftside}
\begin{Rightside} ... \end{Rightside}
\Pages
\begin{Leftside} ... \end{Leftside}
...
\Pages
\end{pages}
```

The **Leftside** text is set on lefthand (even numbered) pages and the **Rightside** text is set on righthand (odd numbered) pages. Each \Pages command starts a new even numbered page. After parallel typesetting is finished, a new page is started.

\Lcolwidth
\Rcolwidth

Within the **pages** environment the lengths \Lcolwidth and \Rcolwidth are the widths of the left and right pages, respectively. By default, these are set to the normal textwidth for the document, but can be changed within the environment if necessary.

\goalfraction

When doing parallel pages **eledpar** has to guess where TeX is going to put pagebreaks and hopefully get there first in order to put the pair of texts on their proper pages. When it thinks that the fraction \goalfraction of a page has been filled, it finishes that page and starts on the other side's text. The definition is:

```
\newcommand*{\goalfraction}{0.9}
```

If you think you can get more on a page, increase this. On the other hand, if some left text overflows onto an odd numbered page or some right text onto an even page, try reducing it, for instance by:

```
\renewcommand*{\goalfraction}{0.8}
```

5 Left and right texts

Parallel texts are divided into **Leftside** and **Rightside**. The form of the contents of these two are independent of whether they will be set in columns or pages.

The left text is put within the **Leftside** environment and the right text likewise in the **Rightside** environment. The number of **Leftside** and **Rightside** environments must be the same.

Within these environments you can designate the line numbering scheme(s) to be used. The **eledmac** package originally used counters for specifying the numbering scheme; now both **eledmac**¹ and the **eledpar** package use macros instead. Following \firstlinenum{\<num>} the first line number will be *<num>*, and following \linenumincrement{\<num>} only every *<num>*th line will have a printed

```
Leftside
Rightside

\firstlinenum
\linenumincrement
\firstsublinenum
\sublinenumincrement
\firstlinenum*
\linenumincrement*
\firstsublinenum*
\sublinenumincrement*
```

¹when used with **ledpatch v0.2** or greater.

number. Using these macros inside the **Leftside** and **Rightside** environments gives you independent control over the left and right numbering schemes. The **\firstsublinenum** and **\sublinenumincrement** macros correspondingly set the numbering scheme for sublines. The starred versions change both left and right numbering schemes.

\pstart In a serial (non-parallel) mode, each numbered paragraph, or chunk, is contained between the **\pstart** and **\pend** macros, and the paragraph is output when the **\pend** macro occurs. The situation is somewhat different with parallel typesetting as the left text (contained within **\pstart** and **\pend** groups within the **Leftside** environment) has to be set in parallel with the right text (contained within its own **\pstart** and **\pend** groups within the corresponding **Rightside** environment) the **\pend** macros cannot immediately initiate any typesetting — this has to be controlled by the **\Columns** or **\Pages** macros. Several chunks may be specified within a **Leftside** or **Rightside** environment. A multi-chunk text then looks like:

```
\begin{...side}
  % \beginnumbering
  \pstart first chunk \pend
  \pstart second chunk \pend
  ...
  \pstart last chunk \pend
  % \endnumbering
\end{...side}
```

Numbering, via **\beginnumbering** and **\endnumbering**, may extend across several **Leftside** or **Rightside** environments. Remember, though, that the Left/Right sides are effectively independent of each other.

Generally speaking, controls like **\firstlinenum** or **\linenummargin** apply to sequential and left texts. To effect right texts only they have to be within a **Rightside** environment.

If you are using the **babel** package with different languages (via, say, **\selectlanguage**) for the left and right texts it is particularly important to select the appropriate language within the **Leftside** and **Rightside** environments. The initial language selected for the right text is the **babel** package's default. Also, it is the *last* **\selectlanguage** in a side that controls the language used in any notes for that side when they get printed. If you are using multilingual notes then it is probably safest to explicitly specify the language(s) for each note rather than relying on the language selection for the side. The right side language is also applied to the right side line numbers.

Corresponding left and right sides must have the same number of paragraph chunks — if there are four on the left there must be four on the right, even if some are empty. The start of each pair of left and right chunks are aligned horizontally on the page. The ends may come at different positions — if one chunk is shorter than the other then blank lines are output on the shorter side until the end of the longer chunk is reached.

However, sometime if the left pstarts are much greater than right pstarts, or *vice-versa*, you can decide to shift the pstarts on the left and right side. That means the start of pstarts are not aligned horizontally on the page, the shift is offset at the end of each double pages. To enable this function, load elepar with the option `shiftedpstarts`.

6 Numbering text lines and paragraphs

`\beginnumbering` Each section of numbered text must be preceded by `\beginnumbering` and followed by `\endnumbering`, like:

```
\beginnumbering
<text>
\endnumbering
```

These have to be separately specified within `Leftside` and `Rightside` environments.

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. Separate auxiliary files are maintained for right hand texts and these are named `(jobname).nnR`, using the ‘R’ to distinguish them from the left hand and serial (non-parallel) texts.

`\memorydump` The command `\memorydump` effectively performs an `\endnumbering` immediately followed by a `\beginnumbering` while not restarting the numbering sequence. This has the effect of clearing TeX’s memory of previous texts and any associated notes, allowing longer apparent streams of parallel texts. The command should be applied to both left and right texts, and after making sure that all previous notes have been output. For example, along the lines of:

```
\begin{Leftside}
\beginnumbering
...
\end{Leftside}
\begin{Rightside}
\beginnumbering
...
\end{Rightside}
\Pages
\begin{Leftside}
\memorydump
...
\end{Leftside}
\begin{Rightside}
\memorydump
...

```

`\Rlineflag` The value of `\Rlineflag` is appended to the line numbers of the right texts.

Its default definition is:

```
\newcommand*{\Rlineflag}{R}
```

This may be useful for parallel columns but for parallel pages it might be more appropriate to redefine it as:

```
\renewcommand*{\Rlineflag}{}.
```

`\printlinesR`
`\leadsavedprintlines`

The `\printlines` macro is ordinarily used to print the line number references for critical footnotes. For footnotes from right side texts a special version is supplied, called `\printlinesR`, which incorporates `\Rlineflag`. (The macro `\leadsavedprintlines` is a copy of the original `\printlines`, just in case ...). As provided, the package makes no use of `\printlinesR` but you may find it useful. For example, if you only use the B footnote series in righthand texts then you may wish to flag any line numbers in those footnotes with the value of `\Rlineflag`. You could do this by putting the following code in your preamble:

```
\let\oldBfootfmt\Bfootfmt
\renewcommand{\Bfootfmt}[3]{%
  \let\printlines\printlinesR
  \oldBfootfmt{#1}{#2}{#3}}
```

`\numberpstarttrue`
`\numberpstartfalse`
`\thepstartL`
`\thepstartR`

It's possible to insert a number at every `\pstart` command. You must use the `\numberpstarttrue` command to have it. You can stop the numerotation with `\numberpstartfalse`. You can redefine the commands `\thepstartL` and `\thepstartR` to change style. The numbering restarts on each `\beginnumbering`

7 Verse

If you are typesetting verse with `eledmac` you can use the `\stanza` construct, and you can also use this in right or left parallel texts. In this case each verse line is a chunk which has two implications. (1) you can unexpectedly exceed the `\maxchunks` limit or the overall limit on the number of boxes, and (2) left and right verse lines are matched, which may not be desirable if one side requires more print lines for verse lines than the other does.

`astanza`

`eledpar` provides an `astanza` environment which you can use instead of `\stanza` (simply replace `\stanza` by `\begin{astanza}` and add `\end{astanza}` after the ending `\&`). Within the `astanza` environment each verse line is treated as a paragraph, so there must be no blank lines in the environment otherwise there will be some extraneous vertical spacing.

If you get an error message along the lines of ‘Missing number, treated as zero `\sza@0@`’ it is because you have forgotten to use `\setstanzaindent` to set the stanza indents.

`\skipnumbering`

The command `\skipnumbering` when inserted in a line of parallel text causes the numbering of that particular line to be skipped. This can be useful if you are putting some kind of marker (even if it is only a blank line) between stanzas. Remember, parallel texts must be numbered and this provides a way to slip in an ‘unnumbered’ line.

The `astanza` environment forms a chunk but you may want to have more than one stanza within the chunk. Here are a couple of ways of doing that with a blank line between each internal stanza, and with each stanza numbered. First some preliminary definitions:

```
\newcommand*{\stanzanum}[2][\stanzaindentbase]{%
  \hskip -#1\llap{\textbf{#2}}\hskip #1\ignorespaces}
\newcommand{\interstanza}{\par\mbox{}\skipnumbering}
```

And now for two stanzas in one. In this first example the line numbering repeats for each stanza.

```
\setstanzaindents{1,0,1,0,1,0,1,0,1,0,1}
\begin{pairs}
\begin{Leftside}
\firstlinenum{2}
\linenumincrement{1}
\beginnenumerating
\begin{astanza}
\stanzanum{1} First in first stanza &
Second in first stanza &
Second in first stanza &
Third in first stanza &
Fourth in first stanza &
\interstanza
\setline{2}\stanzanum{2} First in second stanza &
Second in second stanza &
Second in second stanza &
Third in second stanza &
Fourth in second stanza \&
\end{astanza}
...

```

And here is a slightly different way of doing the same thing, but with the line numbering being continuous.

```
\setstanzaindents{1,0,1,0,1,0,0,1,0,1,0,1}
\begin{pairs}
\begin{Leftside}
\firstlinenum{2}
\linenumincrement{1}
\beginnenumerating
\begin{astanza}
\stanzanum{1} First in first stanza &
Second in first stanza &
Second in first stanza &
Third in first stanza &
Fourth in first stanza &
\strut &
```

```
\stanzanum{2}\advanceline{-1} First in second stanza &
Second in second stanza &
Second in second stanza &
Third in second stanza &
Fourth in second stanza \&
\end{astanza}
...

```

\hangingsymbol Like in elemac, you could redefine the command `\hangingsymbol` to insert a character in each hanged line. If you use it, you must run L^AT_EX two time. Example for the french typographie

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

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

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

When you use `\lednopb` make sure to use it on both sides in the corresponding verses to keep the pages in sync.

8 Implementation overview

TeX is designed to process a single stream of text, which may include footnotes, tables, and so on. It just keeps converting its input into a stream typeset pages. It was not designed for typesetting two texts in parallel, where it has to alternate from one to the other. Further, TeX essentially processes its input one paragraph at a time — it is very difficult to get at the ‘internals’ of a paragraph such as the individual lines in case you want to number them or put some mark at the start or end of the lines.

`eledmac` solves the problem of line numbering by putting the paragraph in typeset form into a box, and then extracting the lines one by one from the box for TeX to put them onto the page with the appropriate page breaks. Most of the `eledmac` code is concerned with handling this box and its contents.

`eledpar`’s solution to the problem of parallel texts is to put the two texts into separate boxes, and then appropriately extract the pairs of lines from the boxes. This involves duplicating much of the original box code for an extra right text box. The other, smaller, part of the code is concerned with coordinating the line extractions from the boxes.

The package code is presented in roughly in the same order as in `eledmac`.

9 Preliminaries

Announce the name and version of the package, which is targetted for LaTeX2e. The package also requires the `eledmac` package.

```
1 {*code}
2 \NeedsTeXFormat{LaTeX2e}
3 \ProvidesPackage{eledpar}[2013/11/08 v1.5.0 elelmac extension for parallel texts]
4
```

With the option ‘shiftedpstarts’ a long pstart on the left side (or in the right side) don’t make a blank on the corresponding pstart, but the blank is put on the bottom of the page. Consequently, the pstarts on the parallel pages are shifted, but the shifted stop at every end of pages. The `\shiftedverses` is kept for backward compatibility.

```
\ifshiftedpstarts
5 \newif\ifshiftedpstarts
6 \let\shiftedversestrue\shiftedpstartstrue
7 \let\shiftedversesfalse\shiftedpstartsfalse
8 \DeclareOption{shiftedverses}{\shiftedpstartstrue}
9 \DeclareOption{shiftedpstarts}{\shiftedpstartstrue}
10 \ProcessOptions
```

As noted above, much of the code is a duplication of the original `eledmac` code to handle the extra box(es) for the right hand side text, and sometimes for the left hand side as well. In order to distinguish I use ‘R’ or ‘L’ in the names of macros for the right and left code. The specifics of ‘L’ and ‘R’ are normally

hidden from the user by letting the `Leftside` and `Rightside` environments set things up appropriately.

<code>\ifl@dpairing</code>	<code>\ifl@dpairing</code> is set TRUE if we are processing parallel texts and <code>\ifl@dpaging</code> is also set TRUE if we are doing parallel pages. <code>\ifledRcol</code> is set TRUE if we are doing the right hand text. <code>\ifl@dpairing</code> is defined in <code>eledmac</code> .
11	<code>\l@dpairingfalse</code>
12	<code>\newif\ifl@dpaging</code>
13	<code>\l@dpagingfalse</code>
14	<code>\ledRcolfalse</code>
<code>\Lcolwidth</code>	The widths of the left and right parallel columns (or pages).
<code>\Rcolwidth</code>	15 <code>\newdimen\Lcolwidth</code> 16 <code>\Lcolwidth=0.45\textwidth</code> 17 <code>\newdimen\Rcolwidth</code> 18 <code>\Rcolwidth=0.45\textwidth</code> 19

9.1 Messages

All the error and warning messages are collected here as macros.

<code>\led@err@TooManyPstarts</code>	
20	<code>\newcommand*\{\led@err@TooManyPstarts\}{%</code>
21	<code>\eledmac@error{Too many \string\pstart\space without printing.</code>
22	<code>Some text will be lost}\{@ehc\}}</code>
<code>d@err@BadLeftRightPstarts</code>	
23	<code>\newcommand*\{\led@err@BadLeftRightPstarts\}[2]{%</code>
24	<code>\eledmac@error{The numbers of left (#1) and right (#2)</code>
25	<code>\string\pstart s do not match}\{@ehc\}}</code>
<code>\led@err@LeftOnRightPage</code>	
<code>\led@err@RightOnLeftPage</code>	26 <code>\newcommand*\{\led@err@LeftOnRightPage\}{%</code>
	27 <code>\eledmac@error{The left page has ended on a right page}\{@ehc\}}</code>
	28 <code>\newcommand*\{\led@err@RightOnLeftPage\}{%</code>
	29 <code>\eledmac@error{The right page has ended on a left page}\{@ehc\}}</code>

10 Sectioning commands

`\section@numR` This is the right side equivalent of `\section@num`.

Each section will read and write an associated ‘line-list file’, containing information used to do the numbering. Normally the file will be called `<jobname>.nn`, where `nn` is the section number. However, for right side texts the file is called `<jobname>.nnR`. The `\extensionchars` applies to the right side files just as it does to the normal files.

30	<code>\newcount\section@numR</code>
31	<code>\section@numR=\z@</code>

```

\ifpst@rtedL \ifpst@rtedL is set FALSE at the start of left side numbering, and similarly for
\ifpst@rtedR \ifpst@rtedR. \ifpst@rtedL is defined in elemac.

32  \pst@rtedLfalse
33 \newif\ifpst@rtedR
34  \pst@rtedRfalse
35

\beginnumbering For parallel processing the original \beginnumbering is extended to zero \l@dnumpstartsL
— the number of chunks to be processed. It also sets \ifpst@rtedL to FALSE.

36 \providecommand*\{\beginnumbering}{%
37   \ifnumbering
38     \led@err@NumberingStarted
39     \endnumbering
40   \fi
41   \global\l@dnumpstartsL \z@
42   \global\pst@rtedLfalse
43   \global\numberingtrue
44   \global\advance\section@num \cne
45   \initnumbering@reg
46   \message{Section \the\section@num}%
47   \line@list@stuff{\jobname.\extensionchars\the\section@num}%
48   \l@dend@stuff}

\beginnumberingR This is the right text equivalent of \beginnumbering, and begins a section of
numbered text.

49 \newcommand*\{\beginnumberingR}{%
50   \ifnumberingR
51     \led@err@NumberingStarted
52     \endnumberingR
53   \fi
54   \global\l@dnumpstartsR \z@
55   \global\pst@rtedRfalse
56   \global\numberingRtrue
57   \global\advance\section@numR \cne
58   \global\absline@numR \z@
59   \gdef\normal@page@breakR{}
60   \gdef\l@prev@pbR{}
61   \gdef\l@prev@nopbR{}
62   \global\line@numR \z@
63   \global@\clockR \z@
64   \global\sub@clockR \z@
65   \global\sublines@false
66   \global\let\next@page@numR\relax
67   \global\let\sub@change\relax
68   \message{Section \the\section@numR R }%
69   \line@list@stuffR{\jobname.\extensionchars\the\section@numR R}%
70   \l@dend@stuff
71   \setcounter{pstartR}{1}
72   \begingroup

```

```

73  \initnumbering@sectcmd
74  \initnumbering@sectcountR
75 }
76

```

\endnumbering This is the left text version of the regular `\endnumbering` and must follow the last text for a left text numbered section. It sets `\ifpst@rtedL` to FALSE. It is fully defined in `eledmac`.

\endnumberingR This is the right text equivalent of `\endnumbering` and must follow the last text for a right text numbered section.

```

77 \def\endnumberingR{%
78   \ifnumberingR
79     \global\numberingRfalse
80     \normal@pars
81     \ifl@dpairing
82       \global\pst@rtedRfalse
83     \else
84       \ifx\insertlines@listR\empty\else
85         \global\noteschanged@true
86       \fi
87       \ifx\line@listR\empty\else
88         \global\noteschanged@true
89       \fi
90     \fi
91     \ifnoteschanged@
92       \led@mess@NotesChanged
93     \fi
94   \else
95     \led@err@NumberingNotStarted
96   \fi\endgroup}
97

```

\initnumbering@sectcountR We don't want the numbering of the right-side section commands to be continuous with the numbering of the left side, we switch the L^AT_EX counter in `\numberingR`.

```

98 \newcounter{chapterR}
99 \newcounter{sectionR}
100 \newcounter{subsectionR}
101 \newcounter{subsubsectionR}
102 \newcommand{\initnumbering@sectcountR}{%
103 \let\c@chapter\c@chapterR
104 \let\c@section\c@sectionR
105 \let\c@subsection\c@subsectionR
106 \let\c@subsubsection\c@subsubsectionR
107 }

```

\pausenumberingR These are the right text equivalents of `\pausenumbering` and `\resumenumbering`.

```

\resumenumberingR 108 \newcommand*{\pausenumberingR}{%
109   \endnumberingR\global\numberingRtrue}

```

```

110 \newcommand*{\resumenumberingR}{%
111   \ifnumberingR
112     \global\pst@rte@true
113     \global\advance\section@numR \cne
114     \led@mess@SectionContinued{\the\section@numR R}%
115     \line@list@stuffR{\jobname.\extensionchars\the\section@numR R}%
116     \l@dend@stuff
117   \else
118     \led@err@numberingShouldHaveStarted
119     \endnumberingR
120     \beginnumberingR
121   \fi}
122

\memorydumpL \memorydump is a shorthand for \pausenumbering\resumenumbering. This will
\memorydumpR clear the memorised stuff for the previous chunks while keeping the numbering
going.

123 \newcommand*{\memorydumpL}{%
124   \endnumbering
125   \numberingtrue
126   \global\pst@rte@true
127   \global\advance\section@num \cne
128   \led@mess@SectionContinued{\the\section@num}%
129   \line@list@stuff{\jobname.\extensionchars\the\section@num}%
130   \l@dend@stuff}
131 \newcommand*{\memorydumpR}{%
132   \endnumberingR
133   \numberingRtrue
134   \global\pst@rte@true
135   \global\advance\section@numR \cne
136   \led@mess@SectionContinued{\the\section@numR R}%
137   \line@list@stuffR{\jobname.\extensionchars\the\section@numR R}%
138   \l@dend@stuff}
139

```

11 Line counting

11.1 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. `eledpar` lets you choose different schemes for the left and right texts.

```

\ifbypstart@R
\bystart@Rtrue
\bystart@Rfalse
  \ifbypage@R
  \bypage@Rtrue
  \bypage@Rfalse

```

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

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

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

```
140 \newif\ifbypage@R
141 \newif\ifbypstart@R
142   \bypage@Rfalse
143   \bypstart@Rfalse
```

`\lineationR` `\lineationR{\langle word\rangle}` is the macro used to select the lineation system for right texts. Its argument is a string: either `page`, `pstart` or `section`.

```
144 \newcommand*{\lineationR}[1]{%
145   \ifnumbering
146     \led@err@LineationInNumbered
147   \else
148     \def\@tempa{\#1}\def\@tempb{page}%
149     \ifx\@tempa\@tempb
150       \global\bypage@Rtrue
151       \global\bypstart@Rfalse
152     \else
153       \def\@tempb{pstart}%
154       \ifx\@tempa\@tempb
155         \global\bypage@Rfalse
156         \global\bypstart@Rtrue
157       \else
158         \def\@tempb{section}%
159         \ifx\@tempa\@tempb
160           \global\bypage@Rfalse
161           \global\bypstart@Rfalse
162         \else
163           \led@warn@BadLineation
164       \fi
165     \fi
166   \fi
167 }\fi}
```

`\linenummargin` You call `\linenummargin{\langle word\rangle}` to specify which margin you want your right text's 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. 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.

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

```
168 \newcount\line@marginR
169 \renewcommand*{\linenummargin}[1]{%
170   \l@dgetline@margin{\#1}%
171   \ifnum\l@dtmcntb>\m@ne
172     \ifledRcol
173       \global\line@marginR=\l@dtmcntb
174     \else
175       \global\line@margin=\l@dtmcntb
```

```
176      \fi
177  \fi}}
```

By default put right text numbers at the right.

```
178 \line@marginR=\@ne
179
```

\c@firstlinenumR The following counters tell *eledmac* which right text 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.

```
180 \newcounter{firstlinenumR}
181  \setcounter{firstlinenumR}{5}
182 \newcounter{linenumincrementR}
183  \setcounter{linenumincrementR}{5}
```

\c@firstsublinenumR The following parameters are just like *firstlinenumR* and *linenumincrementR*, but for sub-line numbers. *sublinenumincrementR* must be at least 1.

```
184 \newcounter{firstsublinenumR}
185  \setcounter{firstsublinenumR}{5}
186 \newcounter{sublinenumincrementR}
187  \setcounter{sublinenumincrementR}{5}
188
```

\firstlinenum These are the user's macros for changing (sub) line numbers. They are defined in *eledmac* v0.7, but just in case I have started by \providing them. The starred versions are specific to *eledpar*.

\sublinenumincrement

```
189 \providecommand*\{\firstlinenum}{}%
190 \providecommand*\{\linenumincrement}{}%
191 \providecommand*\{\firstsublinenum}{}%
192 \providecommand*\{\sublinenumincrement}{}%
193 \renewcommand*\{\firstlinenum}[1]{%
194  \ifledRcol \setcounter{firstlinenumR}{#1}%
195  \else     \setcounter{firstlinenum}{#1}%
196  \fi}%
197 \renewcommand*\{\linenumincrement}[1]{%
198  \ifledRcol \setcounter{linenumincrementR}{#1}%
199  \else     \setcounter{linenumincrement}{#1}%
200  \fi}%
201 \renewcommand*\{\firstsublinenum}[1]{%
202  \ifledRcol \setcounter{firstsublinenumR}{#1}%
203  \else     \setcounter{firstsublinenum}{#1}%
204  \fi}%
205 \renewcommand*\{\sublinenumincrement}[1]{%
206  \ifledRcol \setcounter{sublinenumincrementR}{#1}%
207  \else     \setcounter{sublinenumincrement}{#1}%
208  \fi}%
209 \WithSuffix\newcommand\firstlinenum*[1]{\setcounter{firstlinenumR}{#1}\setcounter{firstlin}
```

```

210 \WithSuffix\newcommand\linenumincrement*[1]{\setcounter{linenumincrementR}{#1}\setcounter{linenumincr}
211 \WithSuffix\newcommand\firstsublinenum*[1]{\setcounter{subfirstlinenumR}{#1}\setcounter{subfirstlinen
212 \WithSuffix\newcommand\sublinenumincrement*[1]{\setcounter{sublinenumincrementR}{#1}\setcounter{subli

\Rlineflag This is appended to the line numbers of right text.
213 \newcommand*{\Rlineflag}{R}
214

\linenumrepR \linenumrepR{\langle ctr \rangle} typesets the right line number <ctr>, and similarly \sublinenumrepR
\sublinenumrepR for subline numbers.
215 \newcommand*{\linenumrepR}[1]{\@arabic{#1}}
216 \newcommand*{\sublinenumrepR}[1]{\@arabic{#1}}
217

\leftlinenumR \leftlinenumR and \rightlinenumR are the macros that are called to print the
\rightlinenumR right text's marginal line numbers. Much of the code for these is common and is
\l@dlinenumR maintained in \l@dlinenumR.
218 \newcommand*{\leftlinenumR}{%
219   \l@dlinenumR
220   \kern\linenumsep
221 \newcommand*{\rightlinenumR}{%
222   \kern\linenumsep
223   \l@dlinenumR
224 \newcommand*{\l@dlinenumR}{%
225   \numlabfont\linenumrepR{\line@numR}\Rlineflag%
226   \ifsublines@
227     \ifnum\subline@num>\z@
228       \unskip\fullstop\sublinenumrepR{\subline@numR}%
229     \fi
230   \fi}
231

```

11.2 Line-number counters and lists

We need another set of counters and lists for the right text, corresponding to those in *eledmac* for regular or left text.

\line@numR The count \line@numR stores the line number that's used in the right text's marginal line numbering and in notes. The count \subline@numR stores a sub-line number that qualifies \line@numR. The count \absline@numR stores the absolute number of lines since the start of the right text section: that is, the number we've actually printed, no matter what numbers we attached to them.

```

232 \newcount\line@numR
233 \newcount\subline@numR
234 \newcount\absline@numR
235

```

\line@listR Now we can define the list macros that will be created from the line-list file. They are directly analogous to the left text ones. The full list of action codes and their meanings is given in the *eledmac* manual.

\actions@listR Here are the commands to create these lists:

```
236 \list@create{\line@listR}
237 \list@create{\insertlines@listR}
238 \list@create{\actionlines@listR}
239 \list@create{\actions@listR}
240
```

\linesinpar@listL In order to synchronise left and right chunks in parallel processing we need to know how many lines are in each left and right text chunk, and the maximum of these for each pair of chunks.

```
241 \list@create{\linesinpar@listL}
242 \list@create{\linesinpar@listR}
243 \list@create{\maxlinesinpar@list}
244
```

\page@numR The right text page number.

```
245 \newcount\page@numR
246
```

11.3 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.

```
247 \renewcommand*{\read@linelist}[1]{%
```

We do different things depending whether or not we are processing right text

```
248 \ifledRcol
249   \list@clear{\line@listR}%
250   \list@clear{\insertlines@listR}%
251   \list@clear{\actionlines@listR}%
252   \list@clear{\actions@listR}%
253   \list@clear{\linesinpar@listR}%
254   \list@clear{\linesonpage@listR}
255 \else
256   \list@clearing@reg
257   \list@clear{\linesinpar@listL}%
258   \list@clear{\linesonpage@listL}%
259 \fi
```

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

```
260 \list@clear{\maxlinesinpar@list}
```

Now get the file and interpret it.

```
261 \get@linelistfile{#1}%
262 \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.

```

263  \ifledRcol
264    \global\page@numR=\m@ne
265    \ifx\actionlines@listR\empty
266      \gdef\next@actionlineR{1000000}%
267    \else
268      \gl@p\actionlines@listR\to\next@actionlineR
269      \gl@p\actions@listR\to\next@actionR
270    \fi
271  \else
272    \global\page@num=\m@ne
273    \ifx\actionlines@list\empty
274      \gdef\next@actionline{1000000}%
275    \else
276      \gl@p\actionlines@list\to\next@actionline
277      \gl@p\actions@list\to\next@action
278    \fi
279  \fi}
280

```

This version of `\read@linelist` creates list macros containing data for the entire section, so they could get rather large. The `\memorydump` macro is available if you run into macro memory limitations.

11.4 Commands within the line-list file

This section defines the commands that can appear within a line-list file, except for `\@lab` which is in a later section among the cross-referencing commands it is associated with.

The macros with `action` in their names contain all the code that modifies the action-code list.

`\@l@regR` `\@l` does everything related to the start of a new line of numbered text. Exactly what it does depends on whether right text is being processed.

```

281 \newcommand{\@l@regR}{%
282   \ifx\l@dchset@num\relax \else
283     \advance\absline@numR \@ne
284     \set@line@action
285     \let\l@dchset@num\relax
286     \advance\absline@numR \m@ne
287     \advance\line@numR \m@ne% % do we need this?
288   \fi
289   \advance\absline@numR \@ne
290   \ifx\next@page@numR\relax \else
291     \page@action

```

```

292      \let\next@page@numR\relax
293  \fi
294  \ifx\sub@change\relax \else
295    \ifnum\sub@change>\z@
296      \sublines@true
297    \else
298      \sublines@false
299    \fi
300    \sub@action
301    \let\sub@change\relax
302  \fi
303  \ifcase\@clockR
304  \or
305    \@clockR \tw@
306  \or\or
307    \@clockR \z@
308  \fi
309  \ifcase\sub@clockR
310  \or
311    \sub@clockR \tw@
312  \or\or
313    \sub@clockR \z@
314  \fi
315  \ifsublines@
316    \ifnum\sub@clockR<\tw@
317      \advance\subline@numR \cne
318    \fi
319  \else
320    \ifnum\@clockR<\tw@
321      \advance\line@numR \cne \subline@numR \z@
322    \fi
323  \fi}
324
325 \renewcommand*{\@l}[2]{%
326   \fix@page{#1}%
327   \ifledRcol
328     \c@l@regR
329   \else
330     \c@l@reg
331   \fi}
332

```

\last@page@numR We have to adjust \fix@page to handle parallel texts.

```

\fix@page 333 \newcount\last@page@numR
334   \last@page@numR=-10000
335 \renewcommand*{\fix@page}[1]{%
336   \ifledRcol
337     \ifnum #1=\last@page@numR
338   \else
339     \ifbypage@R

```

```

340      \line@numR \z@ \subline@numR \z@
341      \fi
342      \page@numR=#1\relax
343      \last@page@numR=#1\relax
344      \def\next@page@numR{#1}%
345      \fi
346 \else
347     \ifnum #1=\last@page@num
348     \else
349       \ifbypage@
350         \line@num \z@ \subline@num \z@
351         \fi
352         \page@num=#1\relax
353         \last@page@num=#1\relax
354         \def\next@page@num{#1}%
355         \listcsxadd{normal@page@break}{\the\absline@num}
356       \fi
357     \fi
358 
```

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

```

359 \renewcommand*\@adv}[1]{%
360   \ifsublines@
361     \ifledRcol
362       \advance\subline@numR by #1\relax
363       \ifnum\subline@numR<\z@
364         \led@warn@BadAdvancelineSubline
365         \subline@numR \z@
366       \fi
367     \else
368       \advance\subline@num by #1\relax
369       \ifnum\subline@num<\z@
370         \led@warn@BadAdvancelineSubline
371         \subline@num \z@
372       \fi
373     \fi
374   \else
375     \ifledRcol
376       \advance\line@numR by #1\relax
377       \ifnum\line@numR<\z@
378         \led@warn@BadAdvancelineLine
379         \line@numR \z@
380       \fi
381     \else
382       \advance\line@num by #1\relax
383       \ifnum\line@num<\z@
384         \led@warn@BadAdvancelineLine
385         \line@num \z@
386       \fi

```

```

387      \fi
388  \fi
389  \set@line@action}
390

```

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

```

391 \renewcommand*{\@set}[1]{%
392   \ifledRcol
393     \ifsblines@
394       \subline@numR=#1\relax
395     \else
396       \line@numR=#1\relax
397     \fi
398     \set@line@action
399   \else
400     \ifsblines@
401       \subline@num=#1\relax
402     \else
403       \line@num=#1\relax
404     \fi
405     \set@line@action
406   \fi}
407

```

\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 `\cl` macro. If it is not `\relax` then a linenumber change is to be done.

```

408 \renewcommand*{\l@d@set}[1]{%
409   \ifledRcol
410     \line@numR=#1\relax
411     \advance\line@numR \cne
412     \def\l@dchset@num{#1}
413   \else
414     \line@num=#1\relax
415     \advance\line@num \cne
416     \def\l@dchset@num{#1}
417   \fi}
418 \let\l@dchset@num\relax
419

```

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

```

420 \renewcommand*{\page@action}{%
421   \ifledRcol
422     \xright@appenditem{\the\absline@numR}\to\actionlines@listR
423     \xright@appenditem{\next@page@numR}\to\actions@listR
424   \else
425     \xright@appenditem{\the\absline@num}\to\actionlines@list

```

```

426      \xright@appenditem{\next@page@num}\to\actions@list
427  \fi}

\set@line@action \set@line@action adds an entry to the action-code list to change the visible line
number.
428 \renewcommand*\set@line@action{%
429   \ifledRcol
430     \xright@appenditem{\the\absline@numR}\to\actionlines@listR
431     \ifsblines@
432       \l@dtmpcnta=-\subline@numR
433     \else
434       \l@dtmpcnta=-\line@numR
435     \fi
436     \advance\l@dtmpcnta by -5000\relax
437     \xright@appenditem{\the\l@dtmpcnta}\to\actions@listR
438   \else
439     \xright@appenditem{\the\absline@num}\to\actionlines@list
440     \ifsblines@
441       \l@dtmpcnta=-\subline@num
442     \else
443       \l@dtmpcnta=-\line@num
444     \fi
445     \advance\l@dtmpcnta by -5000\relax
446     \xright@appenditem{\the\l@dtmpcnta}\to\actions@list
447   \fi}
448

\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 \ifsblines@ flag.
449 \renewcommand*\sub@action{%
450   \ifledRcol
451     \xright@appenditem{\the\absline@numR}\to\actionlines@listR
452     \ifsblines@
453       \xright@appenditem{-1001}\to\actions@listR
454     \else
455       \xright@appenditem{-1002}\to\actions@listR
456     \fi
457   \else
458     \xright@appenditem{\the\absline@num}\to\actionlines@list
459     \ifsblines@
460       \xright@appenditem{-1001}\to\actions@list
461     \else
462       \xright@appenditem{-1002}\to\actions@list
463     \fi
464   \fi}
465

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

```

```

466 \newcount\@lockR
467 \newcount\sub@lockR
468
469 \newcommand*\do@lockonR{%
470   \xright@appenditem{\the\absline@numR}\to\actionlines@listR
471   \ifsublines@%
472     \xright@appenditem{-1005}\to\actions@listR
473     \ifnum\sub@lockR=\z@%
474       \sub@lockR \cne
475     \else
476       \ifnum\sub@lockR=\thr@@%
477         \sub@lockR \cne
478       \fi
479     \fi
480   \else
481     \xright@appenditem{-1003}\to\actions@listR
482     \ifnum\@lockR=\z@%
483       \@lockR \cne
484     \else
485       \ifnum\@lockR=\thr@@%
486         \@lockR \cne
487       \fi
488     \fi
489   \fi}
490
491 \renewcommand*\do@lockon{%
492   \ifx\next\lock@off%
493     \global\let\lock@off=\skip@lockoff
494   \else
495     \ifledRcol
496       \do@lockonR
497     \else
498       \do@lockonL
499     \fi
500   \fi}

\lock@off \lock@off adds an entry to the action-code list to turn line number locking off.
\do@lockoff 501
\do@lockoffR 502
\skip@lockoff 503 \newcommand{\do@lockoffR}{%
504   \xright@appenditem{\the\absline@numR}\to\actionlines@listR
505   \ifsublines@%
506     \xright@appenditem{-1006}\to\actions@listR
507     \ifnum\sub@lockR=\tw@%
508       \sub@lockR \thr@@%
509     \else
510       \sub@lockR \z@%
511     \fi
512   \else
513     \xright@appenditem{-1004}\to\actions@listR

```

```

514     \ifnum\@clockR=\tw@
515         \@clockR \thr@@
516     \else
517         \@clockR \z@
518     \fi
519 \fi}
520
521 \renewcommand*{\do@clockoff}{%
522     \ifledRcol
523         \do@clockoffR
524     \else
525         \do@clockoffL
526     \fi}
527 \global\let\lock@off=\do@clockoff
528

```

\n@num This macro implements the \skipnumbering command. It uses a new action code, namely 1007.

```

529 \providecommand*{\n@num}{}%
530 \renewcommand*{\n@num}{%
531     \ifledRcol
532         \xright@appenditem{\the\absline@numR}\to\actionlines@listR
533         \xright@appenditem{-1007}\to\actions@listR
534     \else
535         \n@num@reg
536     \fi}
537

```

\@ref \@ref marks the start of a passage, for creation of a footnote reference. It takes \insert@countR two arguments:

- #1, the number of entries to add to \insertlines@list for this reference. This value for right text, here and within \edtext, which computes it and writes it to the line-list file, will be stored in the count \insert@countR.

```
538     \newcount\insert@countR
```

- #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.)

The first thing \@ref itself does is to add the specified number of items to the \insertlines@list list.

```

539 \renewcommand*{\@ref}[2]{%
540     \ifledRcol
541         \global\insert@countR=#1\relax
542         \loop\ifnum\insert@countR>\z@
543             \xright@appenditem{\the\absline@numR}\to\insertlines@listR
544             \global\advance\insert@countR \m@ne
545         \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.

```

546  \begingroup
547    \let\@ref=\dummy@ref
548    \let\page@action=\relax
549    \let\sub@action=\relax
550    \let\set@line@action=\relax
551    \let\@lab=\relax
552    #2
553    \global\endpage@num=\page@numR
554    \global\endline@num=\line@numR
555    \global\endsubline@num=\subline@numR
556  \endgroup

```

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

```

557  \xright@appenditem%
558  {\the\page@numR|\the\line@numR|%
559   \ifsublines@ \the\subline@numR \else 0\fi|%
560   \the\endpage@num|\the\endline@num|%
561   \ifsublines@ \the\endsubline@num \else 0\fi}\to\line@listR

```

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

```

562  #2
563  \else

```

And when not in right text

```

564  \@ref@reg{#1}{#2}%
565  \fi}

```

`\@pend` `\@pend{<num>}` adds its argument to the `\linesinpar@listL` list, and analogously `\@pendR` for `\@pendR`. If needed, it resets line number. We start off with a `\providemode` just in case an older version of `eledmac` is being used which does not define these macros.

```

566 \providemode*\{@pend}[1]{}
567 \renewcommand*\{@pend}[1]{%
568   \ifbypstart@\global\line@num=0\fi%
569   \xright@appenditem{#1}\to\linesinpar@listL}
570 \providemode*\{@pendR}[1]{}
571 \renewcommand*\{@pendR}[1]{%
572   \ifbypstart@\global\line@numR=0\fi
573   \xright@appenditem{#1}\to\linesinpar@listR}
574

```

`\@lopL` `\@lopL{<num>}` adds its argument to the `\linesonpage@listL` list, and analogously `\@lopR` for `\@lopR`. We start off with a `\providemode` just in case an older version of

`eledmac` is being used which does not define these macros.

```
575 \providecommand*{\@lopL}[1]{}
576 \renewcommand*{\@lopL}[1]{%
577   \xright@appenditem{#1}\to\linesonpage@listL}
578 \providecommand*{\@lopR}[1]{}
579 \renewcommand*{\@lopR}[1]{%
580   \xright@appenditem{#1}\to\linesonpage@listR}
581
```

11.5 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@outR` The file for right texts will be opened on output stream `\linenum@outR`.

```
582 \newwrite\linenum@outR
```

`\iffirst@linenum@out@R` Once any file is opened on this stream, we keep it open forever, or else switch to `\first@linenum@out@Rtrue` another file that we keep open.

```
\first@linenum@out@Rfalse 583 \newif\iffirst@linenum@out@R
584   \first@linenum@out@Rtrue
```

`\line@list@stuffR` This is the right text version of the `\line@list@stuff{<file>}` macro. It is called by `\beginnumberingR` and performs all the line-list operations needed at the start of a section. Its argument is the name of the line-list file.

```
585 \newcommand*{\line@list@stuffR}[1]{%
586   \read@linelist{#1}%
587   \iffirst@linenum@out@R
588     \immediate\closeout\linenum@outR
589     \global\first@linenum@out@Rfalse
590     \immediate\openout\linenum@outR=#1
591   \else
592     \if@minipage%
593       \if@ledgroup%
594         \closeout\linenum@outR
595         \openout\linenum@outR=#1
596       \else
597         \immediate\closeout\linenum@outR
598         \immediate\openout\linenum@outR=#1\relax
599       \fi
600   \else
601     \closeout\linenum@outR%
602     \openout\linenum@outR=#1\relax%
603   \fi
604 }
```

\new@lineL The \new@lineL macro sends the \c1 command to the left text line-list file, to mark the start of a new text line.

```
606 \newcommand*{\new@lineL}{%
607   \write\linenum@out{\string\c1[\the\c@page] [\thepage]}}
```

\new@lineR The \new@lineR macro sends the \c1 command to the right text line-list file, to mark the start of a new text line.

```
608 \newcommand*{\new@lineR}{%
609   \write\linenum@outR{\string\c1[\the\c@page] [\thepage]}}
```

\flag@start We enclose a lemma marked by \edtext in \flag@start and \flag@end: these \flag@end send the \ceref command to the line-list file.

```
610 \renewcommand*{\flag@start}{%
611   \ifledRcol
612     \edef\next{\write\linenum@outR{%
613       \string\ceref[\the\insert@countR] []}%
614     \next
615   \else
616     \edef\next{\write\linenum@out{%
617       \string\ceref[\the\insert@count] []}%
618     \next
619   \fi}
620 \renewcommand*{\flag@end}{%
621   \ifledRcol
622     \write\linenum@outR[]%
623   \else
624     \write\linenum@out[]%
625   \fi}
```

\startsub \startsub and \endsub turn sub-lineation on and off, by writing appropriate \endsub instructions to the line-list file.

```
626 \renewcommand*{\startsub}{\dimen0\lastskip
627   \ifdim\dimen0>0pt \unskip \fi
628   \ifledRcol \write\linenum@outR{\string\sub@on}%
629   \else \write\linenum@out{\string\sub@on}%
630   \fi
631   \ifdim\dimen0>0pt \hskip\dimen0 \fi
632 \def\endsub{\dimen0\lastskip
633   \ifdim\dimen0>0pt \unskip \fi
634   \ifledRcol \write\linenum@outR{\string\sub@off}%
635   \else \write\linenum@out{\string\sub@off}%
636   \fi
637   \ifdim\dimen0>0pt \hskip\dimen0 \fi}
638
```

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

```
639 \renewcommand*{\advanceline}[1]{%
640   \ifledRcol \write\linenum@outR{\string\cadv[#1]}%
```

```

641 \else      \write\linenum@out{\string\@adv[#1]}%
642 \fi}

```

\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.

```

643 \renewcommand*{\setline}[1]{%
644   \ifnum#1<\z@%
645     \led@warn@BadSetline%
646   \else%
647     \ifledRcol \write\linenum@outR{\string\@set[#1]}%
648     \else      \write\linenum@out{\string\@set[#1]}%
649   \fi%
650 \fi}

```

\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.

```

651 \renewcommand*{\setlinenum}[1]{%
652   \ifnum#1<\z@%
653     \led@warn@BadSetlinenum%
654   \else%
655     \ifledRcol \write\linenum@outR{\string\l@d@set[#1]}%
656     \else      \write\linenum@out{\string\l@d@set[#1]} \fi%
657 \fi}
658

```

\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.

```

659 \renewcommand*{\startlock}{%
660   \ifledRcol \write\linenum@outR{\string\lock@on}%
661   \else      \write\linenum@out{\string\lock@on}%
662 \fi}
663 \def\endlock{%
664   \ifledRcol \write\linenum@outR{\string\lock@off}%
665   \else      \write\linenum@out{\string\lock@off}%
666 \fi}
667

```

\skipnumbering In numbered text, `\skipnumbering` in a line will suspend the numbering for that particular line. That is, line numbers are unchanged and no line number will be printed.

```

668 \renewcommand*{\skipnumbering}{%
669   \ifledRcol \write\linenum@outR{\string\n@num}%
670     \advanceline{-1}%
671   \else%
672     \skipnumbering@reg%
673   \fi}
674

```

12 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.

`\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}
```

`\critext` Now we begin `\critext` itself.

We slightly modify the original to make accomodation for when right text is being processed.

```
675 \long\def\critext#1#2{\leavevmode
676   \begingroup
677     \renewcommand{\@tag}{\noexpand #1}%
678     \set@line
679     \ifledRcol \global\insert@countR \z@
680     \else      \global\insert@count \z@ \fi
681     \ignorespaces #2\relax
682     \@ifundefined{pgf@main@language}{%if not polyglossia
683       \flag@start}%
684       {\ifRTL\flag@end\else\flag@start\fi% be careful on the direction of writing with p
685     }%
686   \endgroup
687   \showlemma{#1}%
688   \ifx\end@lemmas\empty \else
689     \gl@p\end@lemmas\to\x@lemma
690     \x@lemma
691     \global\let\x@lemma=\relax
692   \fi
693   \@ifundefined{pgf@main@language}{%if not polyglossia
694     \flag@end}%
695     {\ifRTL\flag@start\else\flag@end\fi% be careful on the direction of writing with p
696   }%
697 }
```

`\edtext` And similarly for `\edtext`.

```
698 \renewcommand{\edtext}[2]{\leavevmode
699   \begingroup%
700     \renewcommand{\@tag}{\noexpand #1}%
701     \set@line%
```

```

702     \ifledRcol \global\insert@countR \z@%
703     \else      \global\insert@count \z@ \fi%
704     \ignorespaces #2\relax%
705     \@ifundefined{xpg@main@language}{%if not polyglossia
706         \flag@start}%
707         {\if@RTL\flag@end\else\flag@start\fi% be careful on the direction of writing with polyglossia
708     }%
709     \endgroup%
710     \showlemma{\#1}%
711     \ifx\end@lemmas\empty \else%
712         \gl@p\end@lemmas\to\x@lemma%
713         \x@lemma%
714         \global\let\x@lemma=\relax%
715     \fi%
716     \@ifundefined{xpg@main@language}{%if not polyglossia
717         \flag@end}%
718         {\if@RTL\flag@start\else\flag@end\fi% be careful on the direction of writing with polyglossia
719     }%
720 }
721

```

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

```

722 \renewcommand*\set@line{%
723     \ifledRcol
724         \ifx\line@listR\empty
725             \global\noteschanged@true
726             \xdef\l@d@nums{000|000|000|000|000|\edfont@info}%
727         \else
728             \gl@p\line@listR\to@\tempb
729             \xdef\l@d@nums{\@tempb|\edfont@info}%
730             \global\let@\tempb=\undefined
731         \fi
732     \else
733         \ifx\line@list\empty
734             \global\noteschanged@true
735             \xdef\l@d@nums{000|000|000|000|000|\edfont@info}%
736         \else
737             \gl@p\line@list\to@\tempb
738             \xdef\l@d@nums{\@tempb|\edfont@info}%
739             \global\let@\tempb=\undefined
740         \fi
741     \fi}
742

```

13 Parallel environments

The initial set up for parallel processing is deceptively simple.

pairs The **pairs** environment is for parallel columns and the **pages** environment for parallel pages.

```
743 \newenvironment{pairs}{%
744   \l@dpairingtrue
745   \l@dpagingfalse
746 }{%
747   \l@dpairingfalse
748 }
```

The **pages** environment additionally sets the ‘column’ widths to the **\textwidth** (as known at the time the package is called). In this environment, there are two text in parallel on 2 pages. To prevent chapters starting on a lefthand page, the **\chapter** command is redefined to not clear pages.

```
749 \newenvironment{pages}{%
750   \let\oldchapter\chapter
751   \let\chapter\chapterinpages
752   \l@dpairingtrue
753   \l@dpagingtrue
754   \setlength{\Lcolwidth}{\textwidth}%
755   \setlength{\Rcolwidth}{\textwidth}%
756 }{%
757   \l@dpairingfalse
758   \l@dpagingfalse
759   \let\chapter\oldchapter
760 }
761 \newcommand{\chapterinpages}{\thispagestyle{plain}%
762   \global\@topnum\z@
763   \global\@afterindentfalse
764   \secdef\@chapter\@schapter}
765
```

ifinstanzaL These boolean tests are switched by the **\stanza** command, using either the left or right side.

```
766 \newif\ifinstanzaL
767 \newif\ifinstanzaR
```

Leftside Within the **pairs** and **pages** environments the left and right hand texts are within **Leftside** and **Rightside** environments, respectively. The **Leftside** environment is simple, indicating that right text is not within its purview and using some particular macros.

```
768 \newenvironment{Leftside}{%
769   \ledRcolfalse
770   \let\beginnumbering\beginnumbering\setcounter{pstartL}{1}
771   \let\pstart\pstartL
772   \let\thepstart\thepstartL
773   \let\pend\pendL
774   \let\memorydump\memorydumpL
775   \Leftsidehook
776   \let\oldstanza\stanza}
```

```

777 \renewcommand{\stanza}{\oldstanza\global\instanzaLtrue}
778 }{
779   \let\stanza\oldstanza
780   \Leftsidehookend}

```

\Leftsidehook Hooks into the start and end of the **Leftside** and **Rightside** environments. These
\Leftsidehookend are initially empty.

```

\Rightsidehook 781 \newcommand*{\Leftsidehook}={}
\Rightsidehookend 782 \newcommand*{\Leftsidehookend}={}
783 \newcommand*{\Rightsidehook}={}
784 \newcommand*{\Rightsidehookend}={}
785

```

Rightside The **Rightside** environment is only slightly more complicated than the **Leftside**.
 Apart from indicating that right text is being provided it ensures that the right
 right text code will be used.

```

786 \newenvironment{Rightside}{%
787   \ledRcoltrue
788   \let\beginnumbering\beginnumberingR
789   \let\endnumbering\endnumberingR
790   \let\pausenumbering\pausenumberingR
791   \let\resumenundering\resumenunderingR
792   \let\memorydump\memorydumpR
793   \let\thepstart\thepstartR
794   \let\pstart\pstartR
795   \let\pend\pendR
796   \let\ledpb\ledpbR
797   \let\lednspb\lednspbR
798   \let\lineation\lineationR
799   \Rightsidehook
800   \let\oldstanza\stanza
801   \renewcommand{\stanza}{\oldstanza\global\instanzaRtrue}
802 }{%
803   \ledRcolfalse
804   \let\stanza\oldstanza
805   \Rightsidehookend
806 }
807

```

14 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.

14.1 Boxes, counters, \pstart and \pend

\num@linesR
 \one@lineR
 \par@lineR Here are numbers and flags that are used internally in the course of the paragraph decomposition.

When we first form the paragraph, it goes into a box register, \l@dLcolrawbox or \l@cdRcolrawbox for right text, instead of onto the current vertical list. The \ifnumberedpar@ flag will be `true` while a paragraph is being processed in that way. \num@lines(R) 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 \one@line or \one@lineR register, and \par@line(R) will be the number of that line within the paragraph.

```
808 \newcount\num@linesR
809 \newbox\one@lineR
810 \newcount\par@lineR
```

\pstartL \pstart starts the paragraph by clearing the \inserts@list list and other relevant variables, and then arranges for the subsequent text to go into the appropriate box. \pstart needs to appear at the start of every paragraph that's to be numbered.

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.

We have to have specific left and right \pstart when parallel processing; among other things because of potential changes in the linewidth. The old counters are used to have the good reset of the pstart counters at the begining of the \Pages command.

```
811
812 \newcounter{pstartL}
813 \newcounter{pstartLold}
814 \renewcommand{\thepstartL}{\bfseries\arabic{c@pstartL}. }
815 \newcounter{pstartR}
816 \newcounter{pstartRold}
817 \renewcommand{\thepstartR}{\bfseries\arabic{c@pstartR}. }
818
819 \newcommand*\pstartL{%
820 \if@nobreak%
821   \let\@oldnobreak\@nobreaktrue%
822 \else%
823   \let\@oldnobreak\@nobreakfalse%
824 \fi%
825   \nobreaktrue%
826 \ifnumbering \else%
827   \led@err@PstartNotNumbered%
828   \beginnumbering%
829 \fi%
830 \ifnumberedpar@%
831   \led@err@PstartInPstart%
832 \pend%
```

```
833 \fi%
```

If this is the first \pstart in a numbered section, clear any inserts and set \ifpst@rteL to FALSE. Save the pstartL counter.

```
834 \ifpst@rteL\else%
835   \setcounter{pstartOld}{\value{pstartL}}%
836   \list@clear{\inserts@list}%
837   \global\let\next@insert=\empty%
838   \global\pst@rteLtrue%
839 \fi%
840 \begingroup\normal@pars%
```

When parallel processing we check that we haven't exceeded the maximum number of chunks. In any event we grab a box for the forthcoming text.

```
841 \global\advance\l@dnumstartsL \one%
842 \ifnum\l@dnumstartsL>\l@dc@maxchunks%
843   \led@err@TooManyPstarts%
844   \global\l@dnumstartsL=\l@dc@maxchunks%
845 \fi%
846 \global\setnamebox{\l@dc@colrawbox\the\l@dnumstartsL}=\vbox\bgroup%
847 \ifaupar\else%
848   \ifnumberpstart%
849     \ifsidepstartnum%
850       \else%
851         \thepstartL%
852       \fi%
853     \fi%
854   \fi%
855   \hsize=\Lcolwidth%
856   \numberedpar@true%
857   \iflabelpstart\protected@edef\@currentlabel%
858     {\p@pstartL\thepstartL}\fi%
859 }

860 \newcommand*{\pstartR}{%
861 \if@nobreak%
862   \let\oldnobreak\@nobreaktrue%
863 \else%
864   \let\oldnobreak\@nobreakfalse%
865 \fi%
866   \nobreaktrue%
867 \ifnumberingR \else%
868   \led@err@PstartNotNumbered%
869   \beginnumberingR%
870 \fi%
871 \ifnumberedpar@%
872   \led@err@PstartInPstart%
873   \pendR%
874 \fi%
875 \ifpst@rteR\else%
876   \setcounter{pstartOld}{\value{pstartR}}%
```

```

877   \list@clear{\inserts@listR}%
878   \global\let\next@insertR=\empty%
879   \global\pst@rteRtrue%
880 \fi%
881 \begingroup\normal@pars%
882 \global\advance\l@dnumpstartsR \cne%
883 \ifnum\l@dnumpstartsR>\l@dc@maxchunks%
884   \led@err@TooManyPstarts%
885   \global\l@dnumpstartsR=\l@dc@maxchunks%
886 \fi%
887 \global\setnamebox{\l@dRcolrawbox\the\l@dnumpstartsR}=\vbox\bgroup%
888 \ifaupar\else%
889   \ifnumberpstart%
890     \ifsidepstartnum\else%
891       \thepstartR%
892     \fi%
893   \fi%
894 \fi%
895 \hsize=\Rcolwidth%
896 \numberedpar@true%
897 \iflabelpstart\protected@edef\@currentlabel%
898   {\p@pstartR\thepstartR}\fi%
899 }

```

\pendL \pend must be used to end a numbered paragraph. Again we need a version that knows about left parallel texts.

```

900 \newcommand*{\pendL}{\ifnumbering \else%
901   \led@err@PendNotNumbered%
902 \fi%
903 \ifnumberedpar@ \else%
904   \led@err@PendNoPstart%
905 \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.

```

906 \l@dzopenalties%
907 \endgraf\global\num@lines=\prevgraf\egroup%
908 \global\par@line=0%

```

End the group that was begun in the \pstart.

```

909 \endgroup%
910 \ignorespaces%
911 \coldnobreak%
912 \ifnumberpstart%
913   \addtocounter{pstartL}{1}%
914 \fi%
915

```

```
\pendR The version of \pend needed for right texts.

916 \newcommand*{\pendR}{\ifnumberingR \else%
917   \led@err@PendNotNumbered%
918   \fi%
919   \ifnumberedpar@ \else%
920   \led@err@PendNoPstart%
921   \fi%
922   \l0dzeropenalties%
923   \endgraf\global\num@linesR=\prevgraf\egroup%
924   \global\par@lineR=0%
925   \endgroup%
926   \ignorespaces%
927   \oldnobreak%
928   \ifnumberpstart%
929   \addtocounter{pstartR}{1}%
930   \fi%
931 }
932
```

14.2 Processing one line

For parallel texts we have to be able to process left and right lines independently. For sequential text we happily use the original \do@line. Otherwise ...

\l0dleftbox A line of left text will be put in the box \l0dleftbox, and analogously for a line \l0drightbox of right text.

```
933 \newbox\l0dleftbox
934 \newbox\l0drightbox
935
```

\countLline We need to know the number of lines processed.

```
\countRline 936 \newcount\countLline
937   \countLline \z@
938 \newcount\countRline
939   \countRline \z@
940
```

\@donereallinesL We need to know the number of ‘real’ lines output (i.e., those that have been input \@donetotallinesL by the user), and the total lines output (which includes any blank lines output for \@donereallinesR synchronisation).

```
\@donetotallinesR 941 \newcount\@donereallinesL
942 \newcount\@donetotallinesL
943 \newcount\@donereallinesR
944 \newcount\@donetotallinesR
945
```

\do@lineL The \do@lineL macro is called to do all the processing for a single line of left text.

```

946 \newcommand*{\do@lineL}{%
947   \advance\countLline \cne
948   \ifvbox\namebox{l@dLcolrawbox\the\l@dpscL}%
949   {\vbadness=10000
950     \splittopskip=\z@
951     \do@lineLhook
952     \l@demptyd@ta
953     \global\setbox\one@line=\vsplit\namebox{l@dLcolrawbox\the\l@dpscL}%
954     to\baselineskip}%
955   \unvbox\one@line \global\setbox\one@line=\lastbox
956   \getline@numL
957 \ifnum\@lock>\cne\inserthangingsymboltrue\else\inserthangingsymbolfalse\fi
958   \setbox\l@yleftbox
959   \hb@xt@\Lcolwidth{%
960     \affixpstart@numL
961     \affixline@num
962     \l@ldd@ta
963     \add@inserts
964     \affixside@note
965     \l@dlsn@te
966     {\l@edllfill\hb@xt@\wd\one@line{\do@insidelineLhook\inserthangingsymbolL\new@lineL\l@o
967     \l@drsn@te
968   }%
969   \add@penaltiesL
970   \global\advance\@donereallinesL\cne
971   \global\advance\@donetallinesL\cne
972 \else
973   \setbox\l@yleftbox \hb@xt@\Lcolwidth{\hspace*\{\Lcolwidth}\}%
974   \global\advance\@donetallinesL\cne
975 \fi}
976
977

```

\do@lineLhook Hooks, initially empty, into the respective \do@line(L/R) macros.

```

\do@lineRhook 978 \newcommand*{\do@lineRhook}{}%
\do@insidelineLhook 979 \newcommand*{\do@lineRhook}{}%
\do@insidelineRhook 980 \newcommand*{\do@insidelineLhook}{}%
981 \newcommand*{\do@insidelineRhook}{}%
982

```

\do@lineR The \do@lineR macro is called to do all the processing for a single line of right text.

```

983 \newcommand*{\do@lineR}{%
984   \advance\countRline \cne
985   \ifvbox\namebox{l@dRcolrawbox\the\l@dpscR}%
986   {\vbadness=10000
987     \splittopskip=\z@
988     \do@lineRhook
989     \l@demptyd@ta

```

```

990  \global\setbox\one@lineR=\vsplit\namebox{l@dRcolrawbox\the\l@dpscR}
991  \to\baselineskip}%
992  \unvbox\one@lineR \global\setbox\one@lineR=\lastbox
993  \getline@numR
994  \ifnum\@clockR>\@ne\inserthangingsymbolRtrue\else\inserthangingsymbolRfalse\fi
995  \setbox\l@drightbox
996  \hb@xt@\Rcolwidth{%
997    \affixpstart@numR
998    \affixline@numR
999    \l@ldd@ta
1000   \add@insertsR
1001   \affixside@noteR
1002   \l@dlsn@te
1003   {\correctchangingR\ledllfill\hb@xt@\wd\one@lineR{\do@insidelineRhook\inserthangingsymbolR\new@lin
1004     \l@drsn@te
1005   }%
1006   \add@penaltiesR
1007   \global\advance\@donereallinesR\@ne
1008   \global\advance\@donetallinesR\@ne
1009 \else
1010   \setbox\l@drightbox \hb@xt@\Rcolwidth{\hspace*\{\Rcolwidth\}}
1011   \global\advance\@donetallinesR\@ne
1012 \fi}
1013
1014

```

14.3 Line and page number computation

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

```

1015 \newcommand*{\getline@numR}{%
1016   \global\advance\absline@numR \@ne
1017   \do@actionsR
1018   \do@ballastR
1019 \ifnumberline
1020   \ifsblines@
1021     \ifnum\sub@lockR<\tw@
1022       \global\advance\sbline@numR \@ne
1023     \fi
1024   \else
1025     \ifnum\@clockR<\tw@
1026       \global\advance\line@numR \@ne
1027       \global\sbline@numR \z@
1028     \fi
1029   \fi
1030 \fi
1031 }
1032 \newcommand*{\getline@numL}{%
1033   \global\advance\absline@num \@ne

```

```

1034   \do@actions
1035   \do@ballast
1036 \ifnumberline
1037   \ifsublines@
1038     \ifnum\sub@clock<\tw@
1039       \global\advance\subline@num \cne
1040     \fi
1041   \else
1042     \ifnum\@clock<\tw@
1043       \global\advance\line@num \cne
1044       \global\subline@num \z@
1045     \fi
1046   \fi
1047 \fi
1048 }
1049
1050

```

\do@ballastR The real work in the line macros above is done in \do@actions, but before we plunge into that, let's get \do@ballastR out of the way.

```

1051 \newcommand*{\do@ballastR}{\global\ballast@count=\z@
1052 \begingroup
1053   \advance\absline@numR \cne
1054   \ifnum\next@actionlineR=\absline@numR
1055     \ifnum\next@actionR>-1001
1056       \global\advance\ballast@count by -\c@ballast
1057     \fi
1058   \fi
1059 \endgroup}

```

\do@actionsR The \do@actionsR macro looks at the list of actions to take at particular right \do@actions@fixedcodeR text absolute line numbers, and does everything that's specified for the current \do@actions@nextR line.

It may call itself recursively and we use tail recursion, via \do@actions@nextR for this.

```

1060 \newcommand*{\do@actions@fixedcodeR}{%
1061   \ifcase\@l@dtmpcpta%
1062     \or%                                % 1001
1063       \global\sublines@true
1064     \or%                                % 1002
1065       \global\sublines@false
1066     \or%                                % 1003
1067       \global\@clockR=\cne
1068     \or%                                % 1004
1069       \ifnum\@clockR=\tw@
1070         \global\@clockR=\thr@@
1071     \else
1072       \global\@clockR=\z@
1073     \fi

```

```

1074 \or% % 1005
1075   \global\sub@lockR=\@ne
1076 \or% % 1006
1077   \ifnum\sub@lockR=\tw@
1078     \global\sub@lockR=\thr@@
1079   \else
1080     \global\sub@lockR=\z@
1081   \fi
1082 \or% % 1007
1083   \l@dskipnumbertrue
1084 \else
1085   \led@warn@BadAction
1086 \fi}
1087
1088
1089 \newcommand*{\do@actionsR}{%
1090   \global\let\do@actions@nextR=\relax
1091   \l@dtmpcntb=\absline@numR
1092   \ifnum\l@dtmpcntb<\next@actionlineR\else
1093     \ifnum\next@actionR>1001\relax
1094       \global\page@numR=\next@actionR
1095       \ifbypage@R
1096         \global\line@numR \z@ \global\subline@numR \z@
1097       \fi
1098     \else
1099       \ifnum\next@actionR<-4999\relax    % 9/05 added relax here
1100         \l@dtmpcnta=-\next@actionR
1101         \advance\l@dtmpcnta by -5001\relax
1102         \ifsublines@%
1103           \global\subline@numR=\l@dtmpcnta
1104         \else
1105           \global\line@numR=\l@dtmpcnta
1106         \fi
1107       \else
1108         \l@dtmpcnta=-\next@actionR
1109         \advance\l@dtmpcnta by -1000\relax
1110         \do@actions@fixedcodeR
1111       \fi
1112     \fi
1113   \ifx\actionlines@listR\empty
1114     \gdef\next@actionlineR{1000000}%
1115   \else
1116     \l@p\actionlines@listR\to\next@actionlineR
1117     \l@p\actions@listR\to\next@actionR
1118     \global\let\do@actions@nextR=\do@actionsR
1119   \fi
1120 \fi
1121 \do@actions@nextR}
1122

```

14.4 Line number printing

```
\l@dcalcnum \affixline@numR is the right text version of the \affixline@num macro.
\ch@cks@l@ckR 1123
\ch@ck@l@ckR 1124 \providecommand*\l@dcalcnum[3]{%
\fx@l@cksR 1125 \ifnum #1 > #2\relax
\affixline@numR 1126 \l@l@dtmpcnta = #1\relax
1127 \advance\l@l@dtmpcnta by -#2\relax
1128 \divide\l@l@dtmpcnta by #3\relax
1129 \multiply\l@l@dtmpcnta by #3\relax
1130 \advance\l@l@dtmpcnta by #2\relax
1131 \else
1132 \l@l@dtmpcnta=#2\relax
1133 \fi}
1134
1135 \newcommand*\ch@cks@l@ckR{%
1136 \ifcase\sub@lockR
1137 \or
1138 \ifnum\subblock@disp=\@ne
1139 \l@l@dtmpcntb \z@ \l@l@dtmpcnta \@ne
1140 \fi
1141 \or
1142 \ifnum\subblock@disp=\tw@
1143 \else
1144 \l@l@dtmpcntb \z@ \l@l@dtmpcnta \@ne
1145 \fi
1146 \or
1147 \ifnum\subblock@disp=\z@
1148 \l@l@dtmpcntb \z@ \l@l@dtmpcnta \@ne
1149 \fi
1150 \fi}
1151
1152 \newcommand*\ch@ck@l@ckR{%
1153 \ifcase\@lockR
1154 \or
1155 \ifnum\lock@disp=\@ne
1156 \l@l@dtmpcntb \z@ \l@l@dtmpcnta \@ne
1157 \fi
1158 \or
1159 \ifnum\lock@disp=\tw@
1160 \else
1161 \l@l@dtmpcntb \z@ \l@l@dtmpcnta \@ne
1162 \fi
1163 \or
1164 \ifnum\lock@disp=\z@
1165 \l@l@dtmpcntb \z@ \l@l@dtmpcnta \@ne
1166 \fi
1167 \fi}
1168
1169 \newcommand*\fx@l@cksR{%
```

```

1170 \ifcase\@clockR
1171 \or
1172 \global\@clockR \tw@
1173 \or \or
1174 \global\@clockR \z@
1175 \fi
1176 \ifcase\sub@clockR
1177 \or
1178 \global\sub@clockR \tw@
1179 \or \or
1180 \global\sub@clockR \z@
1181 \fi}
1182
1183
1184 \newcommand*{\affixline@numR}{%
1185 \ifnumberline
1186 \ifl@dskipnumber
1187 \global\l@dskipnumberfalse
1188 \else
1189 \ifsublines@
1190   \l@dtmpcntb=\subline@numR
1191   \l@dcalcn{\subline@numR}{\c@firstsublinenumR}{\c@sublinenumincrementR}%
1192   \ch@cksub@lockR
1193 \else
1194   \l@dtmpcntb=\line@numR
1195   \ifx\linenumberlist\empty
1196     \l@dcalcn{\line@numR}{\c@firstlinenumR}{\c@linenumincrementR}%
1197   \else
1198     \l@dtmpcnta=\line@numR
1199     \edef\rem@nder{\linenumberlist,\number\line@numR,}%
1200     \edef\sc@n@list{\def\noexpand\sc@n@list
1201       #####1,\number\l@dtmpcnta,#####2|{\def\noexpand\rem@nder{####2}}}%
1202     \sc@n@list\expandafter\sc@n@list\rem@nder|%
1203     \ifx\rem@nder\empty\advance\l@dtmpcnta\@ne\fi
1204   \fi
1205   \ch@ck@l@ckR
1206 \fi
1207 \ifnum\l@dtmpcnta=\l@dtmpcntb
1208   \if@twocolumn
1209     \if@firstcolumn
1210       \gdef\l@dld@ta{\llap{\leftlinenumR}}%
1211     \else
1212       \gdef\l@drd@ta{\rlap{\rightlinenumR}}%
1213     \fi
1214   \else
1215     \l@dtmpcntb=\line@marginR
1216     \ifnum\l@dtmpcntb>\@ne
1217       \advance\l@dtmpcntb by\page@numR
1218     \fi
1219   \ifodd\l@dtmpcntb

```

```

1220      \gdef\l@drd@ta{\rlap{{\rightlinenumR}}}
1221      \else
1222      \gdef\l@dld@ta{\llap{{\leftlinenumR}}}
1223      \fi
1224      \fi
1225  \fi
1226 \f@x@l@cksR
1227 \fi
1228 \fi}

```

14.5 Pstart number printing in side

The printing of the pstart number is like in elemac, with two differences :

- Some commands have versions suffixed by R or L.
- The `\affixpstart@num` and `\affixpstart@numR` commands are called in the `\Pages` command. Consequently, the `pstartL` and `pstartR` counters must be reset at the begining of this command.

```

\affixpstart@numL
\affixpstart@numR 1229
\leftpstartnumR 1230 \newcommand*\affixpstart@numL{%
\rightpstartnumR 1231 \ifsidepstartnum
\leftpstartnumL 1232 \if@twocolumn
\rightpstartnumL 1233   \if@firstcolumn
\ifpstartnumR 1234     \gdef\l@drd@ta{\llap{{\rightpstartnumL}}}
1235     \else
1236     \gdef\l@drd@ta{\rlap{{\rightpstartnumL}}}
1237     \fi
1238   \else
1239     \l@dtmpcntb=\line@margin
1240     \ifnum\l@dtmpcntb>\@ne
1241       \advance\l@dtmpcntb \page@num
1242     \fi
1243     \ifodd\l@dtmpcntb
1244       \gdef\l@drd@ta{\rlap{{\rightpstartnumL}}}
1245     \else
1246       \gdef\l@drd@ta{\llap{{\leftpstartnumL}}}
1247     \fi
1248   \fi
1249 \fi
1250 }
1251 \newcommand*\affixpstart@numR{%
1252 \ifsidepstartnum
1253 \if@twocolumn
1254   \if@firstcolumn
1255     \gdef\l@drd@ta{\llap{{\leftpstartnumR}}}
1256   \else
1257     \gdef\l@drd@ta{\rlap{{\rightpstartnumR}}}

```

```

1258     \fi
1259 \else
1260     \c@l@dtempcntb=\line@marginR
1261     \ifnum\c@l@dtempcntb>\cne
1262         \advance\c@l@dtempcntb \page@numR
1263     \fi
1264     \ifodd\c@l@dtempcntb
1265         \gdef\l@drd@ta{\rlap{{\rightpstartnumR}}\%}
1266     \else
1267         \gdef\l@drd@ta{\llap{{\leftpstartnumR}}\%}
1268     \fi
1269     \fi
1270 \fi
1271 }
1272
1273 \newcommand*{\leftpstartnumL}{%
1274 \ifpstartnum
1275 \thePstartL
1276 \kern\linenumsep\global\pstartnumfalse\fi
1277 }
1278 \newcommand*{\rightpstartnumL}{%
1279 \ifpstartnum\kern\linenumsep
1280 \thePstartL
1281 \global\pstartnumfalse\fi
1282 }
1283 \newif\ifpstartnumR
1284 \pstartnumRtrue
1285 \newcommand*{\leftpstartnumR}{%
1286 \ifpstartnumR
1287 \thePstartR
1288 \kern\linenumsep\global\pstartnumRfalse\fi
1289 }
1290 \newcommand*{\rightpstartnumR}{%
1291 \ifpstartnumR\kern\linenumsep
1292 \thePstartR
1293 \global\pstartnumRfalse\fi
1294 }

```

14.6 Add insertions to the vertical list

\inserts@listR \inserts@listR is the list macro that contains the inserts that we save up for one right text paragraph.

```
1295 \list@create{\inserts@listR}
```

\add@insertsR The right text version.

```
\add@inserts@nextR 1296 \newcommand*{\add@insertsR}{%
1297     \global\let\add@inserts@nextR=\relax
1298     \ifx\inserts@listR\empty \else
1299         \ifx\next@insertR\empty
```

```

1300      \ifx\insertlines@listR\empty
1301          \global\noteschanged@true
1302          \gdef\next@insertR{100000}%
1303      \else
1304          \gl@p\insertlines@listR\to\next@insertR
1305      \fi
1306  \fi
1307  \ifnum\next@insertR=\absline@numR
1308      \gl@p\inserts@listR\to@\insertR
1309      \@insertR
1310      \global\let@\insertR=\undefined
1311      \global\let\next@insertR=\empty
1312      \global\let\add@inserts@nextR=\add@insertsR
1313  \fi
1314 \fi
1315 \add@inserts@nextR
1316

```

14.7 Penalties

`\add@penaltiesL` `\add@penaltiesR` `\add@penaltiesL` is the last macro used by `\do@lineL`. 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 the code below, which is a virtual copy of the original `\add@penalties`, `\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@dtempcnta` 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`. Finally, the penalty is checked to see that it doesn't go below `-10000`.

```

\newcommand*{\add@penaltiesR}{\@l@dtempcnta=\ballast@count
\ifnum\num@linesR>\@ne
    \global\advance\par@lineR \@ne
    \ifnum\par@lineR=\@ne
        \advance\@l@dtempcnta by \clubpenalty
    \fi
    \ifnum\@l@dtempcntb=\par@lineR \advance\@l@dtempcntb \@ne
    \ifnum\@l@dtempcntb=\num@linesR
        \advance\@l@dtempcnta by \widowpenalty
    \fi
    \ifnum\par@lineR<\num@linesR
        \advance\@l@dtempcnta by \interlinepenalty
    \fi
\fi
\ifnum\@l@dtempcnta=\z@
    \relax
\else

```

```
\ifnum\@l@dtempcpta>-10000
  \penalty\@l@dtempcpta
\else
  \penalty -10000
\fi
\fi}
```

This is for a single chunk. However, as we are probably dealing with several chunks at a time, the above is nor really relevant. I think that it is likely with parallel text that there is no real need to add back any penalties; even if there was, they would have to match across the left and right lines. So, I end up with the following.

```
1317 \newcommand*{\add@penaltiesL}{}
1318 \newcommand*{\add@penaltiesR}{}
1319
```

14.8 Printing leftover notes

`\flush@notesR` The `\flush@notesR` macro is called after the entire right text has been sliced up and sent on to the vertical list.

```
1320 \newcommand*{\flush@notesR}{%
1321   \cxloop
1322   \ifx\inserts@listR\empty \else
1323     \gl@p\inserts@listR\to\@insertR
1324     \@insertR
1325     \global\let\@insertR=\undefined
1326   \repeat}
1327
```

15 Footnotes

15.1 Normal footnote formatting

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 page ???: 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.

`\printlinesR` This is the right text version of `\printlines` and takes account of `\Rlineflag`.
`\ledsavedprintlines` Just in case, `\ledsavedprintlines` is a copy of the original `\printlines`.

Just a reminder of the arguments:

```
\printlinesR #1 | #2 | #3 | #4 | #5 | #6 | #7
\printlinesR start-page | line | subline | end-page | line | subline | font
1328 \def\printlinesR#1|#2|#3|#4|#5|#6|#7{|\\begin{group}
1329   \\setprintlines{#1}{#2}{#3}{#4}{#5}{#6}{%}
1330   \\ifl@d@pnum #1\\fullstop\\fi
```

```

1331 \ifledplinenum \linenumr@p{#2}\Rlineflag\else \symplinenum\fi
1332 \ifl@d@ssub \fullstop \sublinenumr@p{#3}\fi
1333 \ifl@d@dash \endashchar\fi
1334 \ifl@d@pnum #4\fullstop\fi
1335 \ifl@d@elin \linenumr@p{#5}\Rlineflag\fi
1336 \ifl@d@esl \ifl@d@elin \fullstop\fi \sublinenumr@p{#6}\fi
1337 \endgroup
1338
1339 \let\ledsavedprintlines\printlines
1340

```

16 Cross referencing

`\labelref@listR` Set up a new list, `\labelref@listR`, to hold the page, line and sub-line numbers for each label in right text.

```

1341 \list@create{\labelref@listR}
1342

```

`\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.

```

1343 \renewcommand*{\edlabel}[1]{\bsphack
1344   \ifledRcol
1345     \write\linenum@outR{\string\@lab}%
1346     \ifx\labelref@listR\empty
1347       \xdef\label@refs{\zz@@@}%
1348     \else
1349       \gl@p\labelref@listR\to\label@refs
1350     \fi
1351     \ifvmode
1352       \advancelabel@refs
1353     \fi
1354     \protected@write\auxout{}{%
1355       {\string\l@dmake@labelsR\space\thepage|\label@refs|{#1}}%
1356   \else
1357     \write\linenum@out{\string\@lab}%
1358     \ifx\labelref@list\empty
1359       \xdef\label@refs{\zz@@@}%
1360     \else
1361       \gl@p\labelref@list\to\label@refs
1362     \fi
1363     \ifvmode
1364       \advancelabel@refs
1365     \fi
1366     \protected@write\auxout{}{%
1367       {\string\l@dmake@labels\space\thepage|\label@refs|{#1}}%

```

```

1368 \fi
1369 \esphack}
1370

```

\l@dmake@labelsR This is the right text version of \l@dmake@labels, taking account of \Rlineflag.

```

1371 \def\l@dmake@labelsR#1|#2|#3|#4{%
1372   \expandafter\ifx\csname the@label#4\endcsname \relax\else
1373     \led@warn@DuplicateLabel{#4}%
1374   \fi
1375   \expandafter\gdef\csname the@label#4\endcsname{\#1|\#2\Rlineflag|\#3}%
1376   \ignorespaces}
1377 \AtBeginDocument{%
1378   \def\l@dmake@labelsR#1|#2|#3|#4{}%
1379 }
1380

```

\@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, \l@, and the \sub@on and \sub@off commands appearing in the \linenum@out file.

```

1381 \renewcommand*\@lab}{%
1382   \ifledRcol
1383     \xright@appenditem{\linenumr@p{\line@numR}|%
1384       \ifsblines@ \sublinenumr@p{\subline@numR}\else 0\fi}%
1385     \to\labelref@listR
1386   \else
1387     \xright@appenditem{\linenumr@p{\line@num}|%
1388       \ifsblines@ \sublinenumr@p{\subline@num}\else 0\fi}%
1389     \to\labelref@list
1390   \fi}
1391

```

17 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.

\sidenote@marginR Specifies which margin sidenotes can be in.

```

\sidenotemargin 1392 \newcount\sidenote@marginR
1393 \renewcommand*\sidenotemargin}[1]{%
1394   \l@get@sidenote@margin{#1}%
1395   \ifnum@\l@dtmpcntb>\m@ne
1396     \ifledRcol
1397       \global\sidenote@marginR=\l@dtmpcntb
1398     \else
1399       \global\sidenote@margin=\l@dtmpcntb
1400     \fi
1401   \fi}%

```

```

1402 \sidenotemargin{right}
1403 \global\sidenote@margin=\@ne
1404

\l@dlsnote The ‘footnotes’ for left, right, and moveable sidenotes. The whole scheme is rem-
\l@drsnote iniscent of the critical footnotes code.

\l@dcsnote 1405 \renewcommand*{\l@dlsnote}[1]{%
1406   \begingroup%
1407   \newcommand{\content}{#1}%
1408   \ifnumberedpar@
1409     \ifledRcol%
1410       \xright@appenditem{\noexpand\vl@dlsnote{\csexpandonce{content}}}{%
1411         \to\inserts@listR
1412       \global\advance\insert@countR \@ne%
1413     \else%
1414       \xright@appenditem{\noexpand\vl@dlsnote{\csexpandonce{content}}}{%
1415         \to\inserts@list
1416       \global\advance\insert@count \@ne%
1417     \fi
1418   \fi\ignorespaces\endgroup}
1419 \renewcommand*{\l@drsnote}[1]{%
1420   \begingroup%
1421   \newcommand{\content}{#1}%
1422   \ifnumberedpar@
1423     \ifledRcol%
1424       \xright@appenditem{\noexpand\vl@drsnote{\csexpandonce{content}}}{%
1425         \to\inserts@listR
1426       \global\advance\insert@countR \@ne%
1427     \else%
1428       \xright@appenditem{\noexpand\vl@drsnote{\csexpandonce{content}}}{%
1429         \to\inserts@list
1430       \global\advance\insert@count \@ne%
1431     \fi
1432   \fi\ignorespaces\endgroup}
1433 \renewcommand*{\l@dcsnote}[1]{%
1434   \begingroup%
1435   \newcommand{\content}{#1}%
1436   \ifnumberedpar@
1437     \ifledRcol%
1438       \xright@appenditem{\noexpand\vl@dcsnote{\csexpandonce{content}}}{%
1439         \to\inserts@listR
1440       \global\advance\insert@countR \@ne%
1441     \else%
1442       \xright@appenditem{\noexpand\vl@dcsnote{\csexpandonce{content}}}{%
1443         \to\inserts@list
1444       \global\advance\insert@count \@ne%
1445     \fi
1446   \fi\ignorespaces\endgroup}
1447

```

\affixside@noteR The right text version of \affixside@note.

```

1448 \newcommand*\affixside@noteR{%
1449   \def\sidenotecontent{}%
1450   \numdef{\itemcount}{0}%
1451   \def\do##1{%
1452     \ifnumequal{\itemcount}{0}{%
1453       {%
1454         \appto\sidenotecontent{\#\#1}}% Not print not separator before the 1st note
1455         {\appto\sidenotecontent{\sidenotesep ##1}}%
1456       }%
1457       \numdef{\itemcount}{\itemcount+1}%
1458     }%
1459     \dolistloop{\l@dcsnotetext}%
1460     \ifnumgreater{\itemcount}{1}{\eledmac@warning{\itemcount\space sidenotes on line \the\line@numR}%
1461 \gdef@\temp1@d{}%
1462 \ifx@\temp1@d\l@dcsnotetext \else%
1463   \if@twocolumn%
1464     \if@firstcolumn%
1465       \setl@dlp@rbox{\sidenotecontent}%
1466     \else%
1467       \setl@drp@rbox{\sidenotecontent}%
1468     \fi%
1469   \else%
1470     \l@dtmpcntb=\sidenote@marginR%
1471     \ifnum\l@dtmpcntb>\@ne%
1472       \advance\l@dtmpcntb by\page@num%
1473     \fi%
1474     \ifodd\l@dtmpcntb%
1475       \setl@drp@rbox{\sidenotecontent@t}%
1476     \else%
1477       \setl@dlp@rbox{\sidenotecontent}%
1478     \fi%
1479   \fi%
1480 \fi}%
1481

```

18 Familiar footnotes

\l@dbfnote \l@dbfnote adds the footnote to the insert list, and \v{l@dbfnote} calls the original \footnotetext.

```

1482 \renewcommand{\l@dbfnote}[1]{%
1483   \ifnumberedpar@
1484   \gdef\@tag{\#1}%
1485   \ifledRcol%
1486     \xright@appenditem{\noexpand\v{l@dbfnote}{\csexpandonce{@tag}}}{\@thefnmark}}%
1487     \to\inserts@listR
1488   \global\advance\insert@countR \@ne%
1489 \else%

```

```

1490     \xright@appenditem{\noexpand\v\l@dbfnote{{\csexpandonce{@tag}}}{\@thefnmark}}%
1491             \to\inserts@list
1492     \global\advance\insert@count \cne%
1493     \fi
1494     \fi\ignorespaces}
1495

\normalbfnoteX
1496 \renewcommand{\normalbfnoteX}[2]{%
1497   \ifnumberedpar@
1498     \ifledRcol%
1499       \ifluatex
1500         \footnotelang@lua[R]%
1501       \fi
1502       \@ifundefined{xpg@main@language}%if polyglossia
1503     {}%
1504   {\footnotelang@poly[R]}%
1505   \protected@csxdef{thisfootnote}{\cuse{thefootnote#1}}%
1506   \xright@appenditem{\noexpand\vbfnoteX{\#1}{\#2}{\csexpandonce{thisfootnote}}}{%
1507     \to\inserts@list
1508     \global\advance\insert@countR \cne%
1509   \else%
1510     \ifluatex
1511       \footnotelang@lua%
1512     \fi
1513     \@ifundefined{xpg@main@language}%if polyglossia
1514   {}%
1515   {\footnotelang@poly}%
1516   \protected@csxdef{thisfootnote}{\cuse{thefootnote#1}}%
1517   \xright@appenditem{\noexpand\vbfnoteX{\#1}{\#2}{\csexpandonce{thisfootnote}}}{%
1518     \to\inserts@list
1519     \global\advance\insert@count \cne%
1520   \fi
1521   \fi\ignorespaces}
1522

```

19 Verse

Like in elemac, the insertion of hangingsymbol is base on `\ifinserthangingsymbol`, and, for the right side, on `\ifinserthangingsymbolR`.

```

\inserthangingsymbolL
\inserthangingsymbolR 1523 \newif\ifinserthangingsymbolR
1524 \newcommand{\inserthangingsymbolL}{%
1525   \ifinserthangingsymbolR%
1526     \ifinstanzaL%
1527       \hangingsymbol%
1528     \fi%
1529 \fi}

```

```

1530 \newcommand{\inserthangingsymbolR}{%
1531 \ifinserthangingsymbolR%
1532   \ifinstanzaR%
1533     \hangingsymbol%
1534   \fi%
1535 \fi}

```

When a verse is hanged, the column separator is shifted. To prevent it, the `\do@lineL` and `\do@lineR` commands call `\correctchangingL` and `\correctchangingR` commands. These commands insert horizontal skip which length is equal to the hang indent.

```

\correctchangingL
\correctchangingR 1536 \newcommand{\correctchangingL}{%
1537 \ifl@dpaging\else%
1538   \ifinstanzaL%
1539     \ifinserthangingsymbol%
1540       \hskip \c@fundef{sz@0@}{0}{\expandafter%
1541         \noexpand\csname sz@0@\\endcsname\stanzaindentbase}%
1542     \fi%
1543   \fi%
1544 \fi}
1545
1546 \newcommand{\correctchangingR}{%
1547 \ifl@dpaging\else%
1548   \ifinstanzaR%
1549     \ifinserthangingsymbolR%
1550       \hskip \c@fundef{sz@0@}{0}{\expandafter%
1551         \noexpand\csname sz@0@\\endcsname\stanzaindentbase}%
1552     \fi%
1553   \fi%
1554 \fi}

```

Before we can define the main stanza macros we need to be able to save and reset the category code for `&`. To save the current value we use `\next` from the `\loop` macro.

```

1555 \chardef\next=\catcode`\
1556 \catcode`\&=\active
1557

```

`astanza` This is roughly an environmental form of `\stanza`, which treats its stanza-like contents as a single chunk.

```

1558 \newenvironment{astanza}{%
1559   \startstanzahook
1560   \catcode`\&=\active
1561   \global\stanza@count\@ne\stanza@modulo\@ne
1562   \ifnum\useunamecount{sz@0@}=\z@
1563     \let\stanza@hang\relax
1564     \let\endlock\relax

```

```

1565 \else
1566 %% \interlinepenalty\@M % this screws things up, but I don't know why
1567 \rightskip\z@ plus 1fil\relax
1568 \fi
1569 \ifnum\useusernamecount{szp00@}=\z@
1570 \let\sza@penalty\relax
1571 \fi
1572 \def&{%
1573 \endlock\mbox{}%
1574 \sza@penalty
1575 \global\advance\stanza@count\@ne
1576 \@astanza@line}%
1577 \def&{%
1578 \endlock\mbox{}%
1579 \pend
1580 \endstanzaextra}%
1581 \pstart
1582 \@astanza@line
1583 }{}}
1584

```

`\@astanza@line` This gets put at the start of each line in the environment. It sets up the paragraph style — each line is treated as a paragraph.

```

1585 \newcommand*{\@astanza@line}{%
1586 \ifnum\value{stanza@repetition}=0
1587 \parindent=\csname sza@\number\stanza@count
1588 @\endcsname\stanza@base
1589 \else
1590 \parindent=\csname sza@\number\stanza@modulo
1591 @\endcsname\stanza@base
1592 \managestanza@modulo
1593 \fi
1594 \par
1595 \stanza@hang%\mbox{}%
1596 \ignorespaces}
1597

```

Lastly reset the modified category codes.

```

1598 \catcode`\&=\next
1599

```

20 Naming macros

The LaTeX kernel provides `\@namedef` and `\@namuse` for defining and using macros that may have non-letters in their names. We need something similar here as we are going to need and use some numbered boxes and counters.

`\newnamebox` A set of macros for creating and using ‘named’boxes; the macros are called after the regular box macros, but including the string ‘name’.
`\setnamebox`
`\unhnamebox`
`\unvnamebox`
`\namebox`

```

1600 \providecommand*{\newnamebox}[1]{%
1601   \expandafter\newbox\csname #1\endcsname}
1602 \providecommand*{\setnamebox}[1]{%
1603   \expandafter\setbox\csname #1\endcsname}
1604 \providecommand*{\unhnamebox}[1]{%
1605   \expandafter\unhbox\csname #1\endcsname}
1606 \providecommand*{\unvnamebox}[1]{%
1607   \expandafter\unvbox\csname #1\endcsname}
1608 \providecommand*{\namebox}[1]{%
1609   \csname #1\endcsname}
1610
\newnamecount Macros for creating and using ‘named’ counts.
\usenamecount 1611 \providecommand*{\newnamecount}[1]{%
1612   \expandafter\newcount\csname #1\endcsname}
1613 \providecommand*{\usenamecount}[1]{%
1614   \csname #1\endcsname}
1615

```

21 Counts and boxes for parallel texts

In sequential text, each chunk (that enclosed by `\pstart ... \pend`) is put into a box called `\raw@text` and then immediately printed, resulting in the box being emptied and ready for the next chunk. For parallel processing multiple boxes are needed as printing is delayed. We also need extra counters for various things.

`\maxchunks` The maximum number of chunk pairs before printing has to be called for. The `\l@dc@maxchunks` default is 5120 chunk pairs.

```

1616 \newcount\l@dc@maxchunks
1617 \newcommand{\maxchunks}[1]{\l@dc@maxchunks=#1}
1618 \maxchunks{5120}
1619

```

`\l@dnumpstartsL` The numbers of left and right chunks. `\l@dnumpstartsL` is defined in `eledmac`.

`\l@dnumpstartsR` 1620 `\newcount\l@dnumpstartsR`
1621

`\l@pscL` A couple of scratch counts for use in left and right texts, respectively.

`\l@pscR` 1622 `\newcount\l@dpsscL`
1623 `\newcount\l@dpsscR`
1624

`\l@dsetuprawboxes` This macro creates `\maxchunks` pairs of boxes for left and right chunks. The boxes are called `\l@dLcolrawbox1`, `\l@dLcolrawbox2`, etc.

```

1625 \newcommand*{\l@dsetuprawboxes}{%
1626   \l@tempcntb=\l@dc@maxchunks
1627   \loop\ifnum\l@tempcntb>\z@
1628     \newnamebox{\l@dLcolrawbox\the\l@tempcntb}

```

```

1629      \newnamebox{1@dRcolrawbox}{\the\@1@dtmpcntb}
1630      \advance\@1@dtmpcntb \m@ne
1631      \repeat}
1632

\l@dsetupmaxlinecounts To be able to synchronise left and right texts we need to know the maximum number of text lines there are in each pair of chunks. \l@dsetupmaxlinecounts creates \maxchunks new counts called \l@dmaxlinesinpar1, etc., and \l@dzeromaxlinecounts zeroes all of them.
1633 \newcommand*{\l@dsetupmaxlinecounts}{%
1634   \l@dtmpcntb=\l@dc@maxchunks
1635   \loop\ifnum\l@dtmpcntb>\z@
1636     \newnamecount{l@dmaxlinesinpar}{\the\l@dtmpcntb}
1637     \advance\l@dtmpcntb \m@ne
1638   \repeat}
1639 \newcommand*{\l@dzeromaxlinecounts}{%
1640   \begingroup
1641   \l@dtmpcntb=\l@dc@maxchunks
1642   \loop\ifnum\l@dtmpcntb>\z@
1643     \global\usenamecount{l@dmaxlinesinpar}{\the\l@dtmpcntb}=\z@
1644     \advance\l@dtmpcntb \m@ne
1645   \repeat
1646   \endgroup}
1647

```

Make sure that all these are set up. This has to be done after the user has had an opportunity to change \maxchunks.

```

1648 \AtBeginDocument{%
1649   \l@dsetuprawboxes
1650   \l@dsetupmaxlinecounts
1651   \l@dzeromaxlinecounts
1652   \l@dnumpstartsL=\z@
1653   \l@dnumpstartsR=\z@
1654   \l@dpstL=\z@
1655   \l@dpstR=\z@}
1656

```

22 Fixing babel

With parallel texts there is the possibility that the two sides might use different languages via `babel`. On the other hand, `babel` might not be called at all (even though it might be already built into the format).

With the normal sequential text each line is initially typeset in the current language environment, and then it is output at which time its attachments are typeset (in the same language environment). In the parallel case lines are typeset in their current language but an attachment might be typeset outside the language environment of its line if the left and right side languages are different. To counter this, we have to make sure that the correct language is used at the proper times.

```

\ifl@dusedbabel A flag for checking if babel has been used as a package.
\l@dusedbabelfalse 1657 \newif\ifl@dusedbabel
\l@dusedbabeltrue 1658 \l@dusedbabelfalse

\l@dsamelang A flag for checking if the same babel language has been used for both the left and
\l@dsamelangfalse right texts.
\l@dsamelangtrue 1659 \newif\l@dsamelang
1660 \l@dsamelangtrue

\l@dchecklang I'm going to use \theledlanguageL and \theledlanguageR to hold the names of
the languages used for the left and right texts. This macro sets \l@dsamelang
TRUE if they are the same, otherwise it sets it FALSE.
1661 \newcommand*\l@dchecklang{%
1662 \l@dsamelangfalse
1663 \edef\@tempa{\theledlanguageL}\edef\@temp{\theledlanguageR}%
1664 \ifx\@tempa\@tempb
1665 \l@dsamelangtrue
1666 \fi}
1667

\l@dbbl@set@language In babel the macro \bbbl@set@language{\langle lang\rangle} does the work when the language
\langle lang\rangle is changed via \selectlanguage. Unfortunately for me, if it is given an
argument in the form of a control sequence it strips off the \ character rather than
expanding the command. I need a version that accepts an argument in the form
\lang without it stripping the \.
1668 \newcommand*\l@dbbl@set@language[1]{%
1669 \edef\languagename{\#1}%
1670 \select@language{\languagename}%
1671 \if@filesw
1672 \protected@write\auxout{}{\string\select@language{\languagename}}%
1673 \addtocontents{toc}{\string\select@language{\languagename}}%
1674 \addtocontents{lof}{\string\select@language{\languagename}}%
1675 \addtocontents{lot}{\string\select@language{\languagename}}%
1676 \fi}
1677

The rest of the setup has to be postponed until the end of the preamble when
we know if babel has been used or not. However, for now assume that it has not
been used.

\selectlanguage \selectlanguage is a babel command. \theledlanguageL and \theledlanguageR
\l@duselanguage are the names of the languages of the left and right texts. \l@duselanguage is
\theledlanguageL similar to \selectlanguage.
\theledlanguageR 1678 \providecommand{\selectlanguage}[1]{}
1679 \newcommand*\l@duselanguage[1]{}
1680 \gdef\theledlanguageL{}
1681 \gdef\theledlanguageR{}
1682

```

Now do the `babel` fix or `polyglossia`, if necessary.

```
1683 \AtBeginDocument{%
1684   \@ifundefined{xpg@main@language}{%
1685     \ifundefined{bb@main@language}{%
```

Either `babel` has not been used or it has been used with no specified language.

```
1686   \l@dusedbabelfalse
1687   \renewcommand*\{selectlanguage}{1}{}{%
```

Here we deal with the case where `babel` has been used. `\selectlanguage` has to be redefined to use our version of `\bb@set@language` and to store the left or right language.

```
1688   \l@dusedbabeltrue
1689   \let\l@doldselectlanguage\selectlanguage
1690   \let\l@doldbb@set@language\bb@set@language
1691   \let\bb@set@language\l@dbb@set@language
1692   \renewcommand{\selectlanguage}{1}{}{%
1693     \l@doldselectlanguage{\#1}%
1694     \ifledRcol \gdef\theledlanguageR{\#1}%
1695     \else      \gdef\theledlanguageL{\#1}%
1696     \fi}
```

`\l@duselanguage` simply calls the original `\selectlanguage` so that `\theledlanguageL` and `\theledlanguageR` are unaltered.

```
1697   \renewcommand*\{l@duselanguage}{1}{}{%
1698     \l@doldselectlanguage{\#1}}
```

Lastly, initialise the left and right languages to the current `babel` one.

```
1699   \gdef\theledlanguageL{\bb@main@language}%
1700   \gdef\theledlanguageR{\bb@main@language}%
1701   }%
1702 }
```

If on Polyglossia

```
1703 { \apptocmd{\xpg@set@language}{%
1704   \ifledRcol \gdef\theledlanguageR{\#1}%
1705   \else      \gdef\theledlanguageL{\#1}%
1706   \fi}%
1707   \let\l@duselanguage\xpg@set@language
1708   \gdef\theledlanguageL{\xpg@main@language}%
1709   \gdef\theledlanguageR{\xpg@main@language}%
1710 % \end{macrocode}
1711 % That's it.
1712 % \begin{macrocode}
1713 }}
```

23 Parallel columns

`\Columns` The `\Columns` command results in the previous Left and Right texts being typeset in matching columns. There should be equal numbers of chunks in the left and

right texts.

```

1714 \newcommand*\{\Columns}{%
1715   \setcounter{pstartL}{\value{pstartLold}}
1716   \setcounter{pstartR}{\value{pstartRold}}
1717   \ifnum\l@dnumpstartsL=\l@dnumpstartsR\else
1718     \led@err@BadLeftRightPstarts{\the\l@dnumpstartsL}{\the\l@dnumpstartsR}%
1719   \fi

```

Start a group and zero counters, etc.

```

1720 \begingroup
1721   \l@zeropenalties
1722   \endgraf\global\num@lines=\prevgraf
1723   \global\num@linesR=\prevgraf
1724   \global\par@line=\z@
1725   \global\par@lineR=\z@
1726   \global\l@dpscL=\z@
1727   \global\l@dpscR=\z@

```

Check if there are chunks to be processed, and process them two by two (left and right pairs).

```

1728   \check@pstarts
1729   \loop\if@pstarts
1730     \global\pstartnumtrue
1731     \global\pstartnumRtrue

```

Increment $\l@dpscL$ and $\l@dpscR$ which here count the numbers of left and right chunks.

```

1732   \global\advance\l@dpscL \one
1733   \global\advance\l@dpscR \one

```

Check if there is text yet to be processed in at least one of the two current chunks, and also whether the left and right languages are the same

```

1734   \checkraw@text
1735   \l@dchecklang
1736 {
      \loop\ifaraw@text

```

Grab the next pair of left and right text lines and output them, swapping languages if they differ

```

1737   \ifl@dsamelang
1738     \do@lineL
1739     \do@lineR
1740   \else
1741     \l@duselanguage{\the\ledlanguageL}%
1742     \do@lineL
1743     \l@duselanguage{\the\ledlanguageR}%
1744     \do@lineR
1745   \fi
1746   \hb@xt@\hsizet%
1747   \hfill \unhbox\l@yleftbox
1748   \hfill \columnseparator \hfill
1749   \unhbox\l@trightbox

```

```

1750      }%
1751      \checkraw@text
1752      \checkverseL
1753      \checkverseR
1754      \checkpb@columns
1755      \repeat}

```

Having completed a pair of chunks, write the number of lines in each chunk to the respective section files. Increment pstart counters and reset line numbering if it's by pstart.

```

1756      \@writelnlinesinparL
1757      \@writelnlinesinparR
1758      \check@pstarts
1759          \ifbypstart@%
1760              \write\linenum@out{\string\@set[1]}
1761              \resetprevline@%
1762          \fi
1763          \ifbypstart@R%
1764              \write\linenum@outR{\string\@set[1]}
1765              \resetprevline@%
1766          \fi
1767          \addtocounter{pstartL}{1}
1768          \addtocounter{pstartR}{1}
1769      \repeat

```

Having output all chunks, make sure all notes have been output, then zero counts ready for the next set of texts. The boolean tests for stanza are switched to false.

```

1770      \flush@notes
1771      \flush@notesR
1772      \endgroup
1773      \global\l@dpscL=\z@
1774      \global\l@dpscR=\z@
1775      \global\l@dnumpstartsL=\z@
1776      \global\l@dnumpstartsR=\z@
1777      \ignorespaces
1778          \global\instanzaLfalse
1779          \global\instanzaRfalse}
1780

```

\checkpb@columns \checkpb@columns prevent or make pagebreaking in columns, depending of the use of \ledpb or \lednoph.

```

1781
1782 \newcommand{\checkpb@columns}{%
1783     \newif\if@pb
1784     \newif\if@nopb
1785     \IfStrEq{\led@pb@setting}{before}{%
1786         \numdef{\next@absline}{\the\absline@num+1}%
1787         \numdef{\next@abslineR}{\the\absline@numR+1}%
1788         \xifinlistcs{\next@absline}{\l@prev@pb}{\@pbtrue}{\@pbfalse}{}%
1789         \xifinlistcs{\next@abslineR}{\l@prev@pbR}{\@pbtrue}{\@pbfalse}{}%
}

```

```

1790 \xifinlistcs{\next@absline}{\l@prev@nopb}{\@nopbtrue}{\}%
1791 \xifinlistcs{\next@abslineR}{\l@prev@nopbR}{\@nopbtrue}{\}%
1792 }{}%
1793 \IfStrEq{\led@pb@setting}{after}{%
1794 \xifinlistcs{\the\absline@num}{\l@prev@pb}{\@pbtrue}{\}%
1795 \xifinlistcs{\the\absline@numR}{\l@prev@pbR}{\@pbtrue}{\}%
1796 \xifinlistcs{\the\absline@num}{\l@prev@nopb}{\@nopbtrue}{\}%
1797 \xifinlistcs{\the\absline@numR}{\l@prev@nopbR}{\@nopbtrue}{\}%
1798 }{}%
1799 \if@nopb\nopagebreak[4]\enlargethispage{\baselineskip}\fi
1800 \if@pb\pagebreak[4]\fi
1801 }

```

`\columnseparator` The separator between line pairs in parallel columns is in the form of a vertical rule extending a little below the baseline and with a height slightly greater than the `\baselineskip`. The width of the rule is `\columnrulewidth` (initially 0pt so the rule is invisible).

```

1802 \newcommand*{\columnseparator}{%
1803 \smash{\rule[-0.2\baselineskip]{\columnrulewidth}{1.05\baselineskip}}}
1804 \newdimen\columnrulewidth
1805 \columnrulewidth=\z@
1806

```

`\if@pstarts \check@pstarts` returns `\@pstartstrue` if there are any unprocessed chunks.

```

\@pstartstrue 1807 \newif\if@pstarts
\@pstartsfalse 1808 \newcommand*{\check@pstarts}{%
\check@pstarts 1809 \@pstartsfalse
1810 \ifnum\l@dnumpstartsL>\l@dpscL
1811 \@pstartstrue
1812 \else
1813 \ifnum\l@dnumpstartsR>\l@dpscR
1814 \@pstartstrue
1815 \fi
1816 \fi
1817 }
1818

```

`\ifaraw@text \checkraw@text` checks whether the current Left or Right box is void or not. If `\araw@texttrue` one or other is not void it sets `\araw@texttrue`, otherwise both are void and it `\araw@textfalse` sets `\araw@textfalse`.

```

\checkraw@text 1819 \newif\ifaraw@text
1820 \araw@textfalse
1821 \newcommand*{\checkraw@text}{%
1822 \araw@textfalse
1823 \ifvbox\namebox{\l@dLcolrawbox\the\l@dpscL}
1824 \araw@texttrue
1825 \else
1826 \ifvbox\namebox{\l@dRcolrawbox\the\l@dpscR}
1827 \araw@texttrue

```

```

1828     \fi
1829   \fi
1830 }
1831

```

\@writelnesinparL These write the number of text lines in a chunk to the section files, and then
\@writelnesinparR afterwards zero the counter.

```

1832 \newcommand*{\@writelnesinparL}{%
1833   \edef\next{%
1834     \write\linenum@out{\string\@pend[\the\@donereallinesL]}%
1835   \next
1836   \global\@donereallinesL \z@}
1837 \newcommand*{\@writelnesinparR}{%
1838   \edef\next{%
1839     \write\linenum@outR{\string\@pendR[\the\@donereallinesR]}%
1840   \next
1841   \global\@donereallinesR \z@}
1842

```

24 Parallel pages

This is considerably more complicated than parallel columns.

\numpagelinesL Counts for the number of lines on a left or right page, and the smaller of the
\numpagelinesR number of lines on a pair of facing pages.

```

\l@dminpagelines 1843 \newcount\numpagelinesL
1844 \newcount\numpagelinesR
1845 \newcount\l@dminpagelines
1846

```

\Pages The \Pages command results in the previous Left and Right texts being typeset on matching facing pages. There should be equal numbers of chunks in the left and right texts.

```

1847 \newcommand*{\Pages}{%
1848   \setcounter{pstartL}{\value{pstartLold}}
1849   \setcounter{pstartR}{\value{pstartRold}}
1850   \typeout{%
1851     \typeout{***** PAGES *****}
1852     \ifnum\l@dnumpstartsL=\l@dnumpstartsR\else
1853       \led@err@BadLeftRightPstarts{\the\l@dnumpstartsL}{\the\l@dnumpstartsR}%
1854     \fi

```

Get onto an empty even (left) page, then initialise counters, etc.

```

1855 \cleartol@evenpage
1856 \begingroup
1857   \l@dzeroenalties
1858   \endgraf\global\num@lines=\prevgraf
1859   \global\num@linesR=\prevgraf

```

```

1860 \global\par@line=\z@
1861 \global\par@lineR=\z@
1862 \global\l@dpscL=\z@
1863 \global\l@dpscR=\z@
1864 \writtenlinesLfalse
1865 \writtenlinesRfalse

```

Check if there are chunks to be processed.

```

1866 \check@pstarts
1867 \loop\if@pstarts

```

Loop over the number of chunks, incrementing the chunk counts ($\l@dpscL$ and $\l@dpscR$ are chunk (box) counts.)

```

1868 \global\advance\l@dpscL \cne
1869 \global\advance\l@dpscR \cne

```

Calculate the maximum number of real text lines in the chunk pair, storing the result in the relevant $\l@dmaxlinesinpar$.

```

1870 \getlinesfromparlistL
1871 \getlinesfromparlistR
1872 \l@dcalc@maxoftwo{\@cs@linesinparL}{\@cs@linesinparR}%
1873 {\useusernamecount{\l@dmaxlinesinpar}{\the\l@dpscL}}%
1874 \check@pstarts
1875 \repeat

```

Zero the counts again, ready for the next bit.

```

1876 \global\l@dpscL=\z@
1877 \global\l@dpscR=\z@

```

Get the number of lines on the first pair of pages and store the minimum in $\l@dminpagelines$.

```

1878 \getlinesfrompagelistL
1879 \getlinesfrompagelistR
1880 \l@dcalc@minoftwo{\@cs@linesonpageL}{\@cs@linesonpageR}%
1881 {\l@dminpagelines}%

```

Now we start processing the left and right chunks ($\l@dpscL$ and $\l@dpscR$ count the left and right chunks), starting with the first pair.

```

1882 \check@pstarts
1883 \if@pstarts

```

Increment the chunk counts to get the first pair.

```

1884 \global\advance\l@dpscL \cne
1885 \global\advance\l@dpscR \cne

```

We haven't processed any lines from these chunks yet, so zero the respective line counts.

```

1886 \global\@donereallinesL=\z@
1887 \global\@donetotallinesL=\z@
1888 \global\@donereallinesR=\z@
1889 \global\@donetotallinesR=\z@

```

Start a loop over the boxes (chunks).

```
1890      \checkraw@text
1891 %
1892 {      \begingroup
            \loop\ifaraw@text
```

See if there is more that can be done for the left page and set up the left language.

```
1893      \checkpageL
1894      \l@duselanguage{\theledlanguageL}%
1895 %%%
1896 {      \begingroup
            \loop\ifl@dsamepage
1897
```

Process the next (left) text line, adding it to the page.

```
1898      \do@lineL
1899      \advance\numpagelinesL \one
1900      \ifshiftedpstarts
1901          \ifdim\ht\l@leftbox>0pt\hb@xt@ \hspace{\ledstrutL\unhbox\l@leftbox}%
1902      \else%
1903          \hb@xt@ \hspace{\ledstrutL\unhbox\l@leftbox}%
1904      \fi
```

Perhaps we have to move to the next (left) box. Check if we have got all we can onto the page. If not, repeat for the next line.

```
1905
1906      \get@nextboxL
1907      \checkpageL
1908      \checkverseL
1909      \checkpbl
1910      \repeat
```

That (left) page has been filled. Output the number of real lines on the page — if the page break is because the page has been filled with lines, use the actual number, otherwise the page has been ended early in order to synchronise with the facing page so use an impossibly large number.

```
1911      \ifl@dpagefull
1912          \c@writelnsonpageL{\the\numpagelinesL}%
1913      \else
1914          \c@writelnsonpageL{1000}%
1915      \fi
```

Zero the left page lines count and clear the page to get onto the facing (odd, right) page.

```
1916      \numpagelinesL \z@%
1917      \clearl@leftpage }%
```

Now do the same for the right text.

```
1918      \checkpageR
1919      \l@duselanguage{\theledlanguageR}%
1920 {      \loop\ifl@dsamepage
            \do@lineR
```

```

1922      \advance\numpagelinesR \@ne
1923      \ifshiftedpstarts
1924          \ifdim\ht\l@drightbox>0pt\hb@xt@ \hspace{\ledstrutR\unhbox\l@drightbox}\fi%
1925      \else%
1926          \hb@xt@ \hspace{\ledstrutR\unhbox\l@drightbox}%
1927      \fi
1928      \get@nextboxR
1929      \checkpageR
1930      \checkverseR
1931      \checkpbR
1932      \repeat
1933      \ifl@dpagewill
1934          \writelinesonpageR{\the\numpagelinesR}%
1935      \else
1936          \writelinesonpageR{1000}%
1937      \fi
1938      \numpagelinesR=\z@

```

The page is full, so move onto the next (left, odd) page and repeat left text processing.

```
1939      \clearl@drighthpage}
```

More to do? If there is we have to get the number of lines for the next pair of pages before starting to output them.

```

1940      \checkraw@text
1941      \ifaraw@text
1942          \getlinesfrompagelistL
1943          \getlinesfrompagelistR
1944          \l@dcalc@minoftwo{\@cs@linesonpageL}{\@cs@linesonpageR}%
1945          {\l@dminpagelines}%
1946      \fi
1947      \repeat

```

We have now output the text from all the chunks.

```
1948      \fi
```

Make sure that there are no inserts hanging around.

```

1949      \flush@notes
1950      \flush@notesR
1951  \endgroup

```

Zero counts ready for the next set of left/right text chunks. The boolean tests for stanza are switched to false.

```

1952  \global\l@dpscL=\z@
1953  \global\l@dpscR=\z@
1954  \global\l@dnumpstartsL=\z@
1955  \global\l@dnumpstartsR=\z@
1956  \global\instanzaL=false
1957  \global\instanzaR=false
1958  \ignorespaces}
1959

```

```

\ledstrutL Struts inserted into leftand right text lines.
\ledstrutR 1960 \newcommand*{\ledstrutL}{\strut}
            1961 \newcommand*{\ledstrutR}{\strut}
            1962

\cleartoevenpage \cleartoevenpage, which is defined in the memoir class, is like \clear(double)page
\cleartol@evenpage except that we end up on an even page. \cleartol@evenpage is similar except
\clearl@leftpage that it first checks to see if it is already on an empty page. \clearl@leftpage
\clearl@rightpage and \clearl@rightpage get us onto an odd and even page, respectively, checking
that we end up on the immedately next page.
1963 \providecommand{\cleartoevenpage}[1][\empty] {%
1964   \clearpage
1965   \ifodd\c@page\hbox{}#1\clearpage\fi}
1966 \newcommand*{\cleartol@evenpage}{%
1967   \ifdim\pagetotal<\topskip% on an empty page
1968   \else
1969     \clearpage
1970   \fi
1971   \ifodd\c@page\hbox{}\clearpage\fi}
1972 \newcommand*{\clearl@leftpage}{%
1973   \clearpage
1974   \ifodd\c@page\else
1975     \led@err@LeftOnRightPage
1976     \hbox{}%
1977     \cleardoublepage
1978   \fi}
1979 \newcommand*{\clearl@rightpage}{%
1980   \clearpage
1981   \ifodd\c@page
1982     \led@err@RightOnLeftPage
1983     \hbox{}%
1984     \cleartoevenpage
1985   \fi}
1986

\getlinesfromparlistL \getlinesfromparlistL gets the next entry from the \linesinpar@listL and
\@cs@linesinparL puts it into \@cs@linesinparL; if the list is empty, it sets \@cs@linesinparL to
\getlinesfromparlistR 0. Similarly for \getlinesfromparlistR.
\@cs@linesinparR 1987 \newcommand*{\getlinesfromparlistL}{%
1988   \ifx\linesinpar@listL\empty
1989     \gdef\@cs@linesinparL{0}%
1990   \else
1991     \gl@p\linesinpar@listL\to\@cs@linesinparL
1992   \fi}
1993 \newcommand*{\getlinesfromparlistR}{%
1994   \ifx\linesinpar@listR\empty
1995     \gdef\@cs@linesinparR{0}%
1996   \else
1997     \gl@p\linesinpar@listR\to\@cs@linesinparR

```

```
1998 \fi}
1999
```

\getlinesfrompagelistL \getlinesfrompagelistL gets the next entry from the \linesonpage@listL and \cs@linesonpageL puts it into \cs@linesonpageL; if the list is empty, it sets \cs@linesonpageL \getlinesfrompagelistR to 1000. Similarly for \getlinesfrompagelistR.

```
2000 \newcommand*\getlinesfrompagelistL{%
2001   \ifx\linesonpage@listL\empty
2002     \gdef\cs@linesonpageL{1000}%
2003   \else
2004     \gl@p\linesonpage@listL\to\cs@linesonpageL
2005   \fi}
2006 \newcommand*\getlinesfrompagelistR{%
2007   \ifx\linesonpage@listR\empty
2008     \gdef\cs@linesonpageR{1000}%
2009   \else
2010     \gl@p\linesonpage@listR\to\cs@linesonpageR
2011   \fi}
2012
```

\@writelnsonpageL These macros output the number of lines on a page to the section file in the form \@writelnsonpageR of \lopL or \lopR macros.

```
2013 \newcommand*\writelnsonpageL[1]{%
2014   \edef\next{\write\linenum@out{\string\lopL{\#1}}}%
2015   \next}
2016 \newcommand*\writelnsonpageR[1]{%
2017   \edef\next{\write\linenum@outR{\string\lopR{\#1}}}%
2018   \next}
2019
```

\l@dcalc@maxoftwo \l@dcalc@maxoftwo{\langle num \rangle}{\langle num \rangle}{\langle count \rangle} sets \langle count \rangle to the maximum of \l@dcalc@minoftwo the two \langle num \rangle.

Similarly \l@dcalc@minoftwo{\langle num \rangle}{\langle num \rangle}{\langle count \rangle} sets \langle count \rangle to the minimum of the two \langle num \rangle.

```
2020 \newcommand*\l@dcalc@maxoftwo[3]{%
2021   \ifnum #2>\#1\relax
2022     #3=\#2\relax
2023   \else
2024     #3=\#1\relax
2025   \fi}
2026 \newcommand*\l@dcalc@minoftwo[3]{%
2027   \ifnum #2<\#1\relax
2028     #3=\#2\relax
2029   \else
2030     #3=\#1\relax
2031   \fi}
2032
```

```

\ifl@dsamepage \checkpageL tests if the space and lines already taken on the page by text and foot-
\l@dsamepagetrue notes is less than the constraints. If so, then \ifl@dpagefull is set FALSE and
\l@dsamepagefalse \ifl@dsamepage is set TRUE. If the page is spatially full then \ifl@dpagefull
\ifl@dpagefull is set TRUE and \ifl@dsamepage is set FALSE. If it is not spatially full but
\l@dpagefulltrue the maximum number of lines have been output then both \ifl@dpagefull and
\l@dpagefullfalse \ifl@dsamepage are set FALSE.

\checkpageL 2033 \newif\ifl@dsamepage
\checkpageR 2034 \l@dsamepagetrue
2035 \newif\ifl@dpagefull
2036
2037 \newcommand*\{\checkpageL\}{%
2038   \l@dpagefulltrue
2039   \l@dsamepagetrue
2040   \check@goal
2041   \ifdim\pagetotal<\ledthegoal
2042     \ifnum\numpagelinesL<\l@dmnpagelines
2043     \else
2044       \l@dsamepagefalse
2045       \l@dpagefullfalse
2046     \fi
2047   \else
2048     \l@dsamepagefalse
2049     \l@dpagefulltrue
2050   \fi}
2051 \newcommand*\{\checkpageR\}{%
2052   \l@dpagefulltrue
2053   \l@dsamepagetrue
2054   \check@goal
2055   \ifdim\pagetotal<\ledthegoal
2056     \ifnum\numpagelinesR<\l@dmnpagelines
2057     \else
2058       \l@dsamepagefalse
2059       \l@dpagefullfalse
2060     \fi
2061   \else
2062     \l@dsamepagefalse
2063     \l@dpagefulltrue
2064   \fi}
2065

\checkpbL \checkpbL and \checkpbR are called after each line is printed, and after the
\checkpbR page is checked. These commands correct page breaks depending on \ledpb and
\lednopb.
2066 \newcommand{\checkpbL}{%
2067   \IfStrEq{\led@pb@setting}{after}{%
2068     \xifinlistcs{\the\absline@num}{\l@prev@pb}{\l@dpagefulltrue\l@dsamepagefalse}{}%
2069     \xifinlistcs{\the\absline@num}{\l@prev@nopb}{\l@dpagefullfalse\l@dsamepagetrue}{}%
2070   }{}%
2071   \IfStrEq{\led@pb@setting}{before}{%

```

```

2072   \numdef{\next@absline}{\the\absline@num+1}
2073   \xifinlistcs{\next@absline}{\l@prev@pb}{\l@dpagefulltrue\l@dsamepagefalse}{}
2074   \xifinlistcs{\next@absline}{\l@prev@nopb}{\l@dpagefullfalse\l@dsamepagetrue}{}
2075 }{ }
2076 }
2077
2078 \newcommand{\checkpbR}{%
2079   \IfStrEq{\led@pb@setting}{after}{%
2080     \xifinlistcs{\the\absline@numR}{\l@prev@pbR}{\l@dpagefulltrue\l@dsamepagefalse}{}
2081     \xifinlistcs{\the\absline@numR}{\l@prev@nopbR}{\l@dpagefullfalse\l@dsamepagetrue}{}
2082   }{%
2083   \IfStrEq{\led@pb@setting}{before}{%
2084     \numdef{\next@abslineR}{\the\absline@numR+1}
2085     \xifinlistcs{\next@abslineR}{\l@prev@pbR}{\l@dpagefulltrue\l@dsamepagefalse}{}
2086     \xifinlistcs{\next@abslineR}{\l@prev@nopbR}{\l@dpagefullfalse\l@dsamepagetrue}{}
2087   }{ }
2088 }

```

\checkverseL \checkverseL and \checkverseR are called after each line is printed. They prevent page break inside verse.

```

2089 \newcommand{\checkverseL}{%
2090   \ifinstanzaL
2091   \iflednopbinverse
2092     \ifinserthangingsymbol
2093       \numgdef{\prev@abslineverse}{\the\absline@num-1}
2094       \IfStrEq{\led@pb@setting}{after}{\lednopbnum{\prev@abslineverse}}{%
2095       \IfStrEq{\led@pb@setting}{before}{\ifnum\numpagelinesL<3\ledpbnum{\prev@abslineverse}\fi}{%
2096     \fi
2097   \fi
2098 \fi
2099 }
2100 \newcommand{\checkverseR}{%
2101   \ifinstanzaR
2102   \iflednopbinverse
2103     \ifinserthangingsymbolR
2104       \numgdef{\prev@abslineverse}{\the\absline@numR-1}
2105       \IfStrEq{\led@pb@setting}{after}{\lednopbnumR{\prev@abslineverse}}{%
2106       \IfStrEq{\led@pb@setting}{before}{\ifnum\numpagelinesR<3\ledpbnumR{\prev@abslineverse}\fi}{%
2107     \fi
2108   \fi
2109 \fi
2110 }

```

\ledthegoal \ledthegoal is the amount of space allowed to taken by text and footnotes on \goalfraction a page before a forced pagebreak. This can be controlled via \goalfraction.

\check@goal \ledthegoal is calculated via \check@goal.

```

2111 \newdimen\ledthegoal
2112 \ifshiftedpstarts
2113   \newcommand*\goalfraction{0.95}

```

```

2114 \else
2115     \newcommand*{\goalfraction}{0.9}
2116 \fi
2117
2118 \newcommand*{\check@goal}{%
2119   \ledthegoal=\goalfraction\pagegoal}
2120

```

\ifwrittenlinesL Booleans for whether line data has been written to the section file.

```

\ifwrittenlinesL 2121 \newif\ifwrittenlinesL
2122 \newif\ifwrittenlinesR
2123

```

\get@nextboxL If the current box is not empty (i.e., still contains some lines) nothing is done.

\get@nextboxR Otherwise if and only if a synchronisation point is reached the next box is started.

```

2124 \newcommand*{\get@nextboxL}{%
2125   \ifvbox\namebox{1@dLcolrawbox\the\l@dpscL}\% box is not empty

```

The current box is not empty; do nothing.

```

2126 \else%                                box is empty

```

The box is empty; check if enough lines (real and blank) have been output.

```

2127   \ifnum\usecount{l@dmaxlinesinpar\the\l@dpscL}>\@donetotallinesL
2128 \else

```

Sufficient lines have been output.

```

2129   \ifwrittenlinesL
2130 \else

```

Write out the number of lines done, and set the boolean so this is only done once.

```

2131   \@writelnlinesinparL
2132   \writtenlinesLtrue
2133   \fi
2134   \ifnum\l@dnumpstartsL>\l@dpscL

```

There are still unprocessed boxes. Recalculate the maximum number of lines needed, and move onto the next box (by incrementing \l@dpscL). If needed, restart the line numbering. Increment the pstartL counter.

```

2135   \writtenlinesLfalso
2136   \ifbypstart@
2137   \ifnum\value{pstartL}<\value{pstartLold}
2138   \else
2139     \global\line@num=0
2140     \resetprevline@
2141   \fi
2142   \fi
2143   \addtocounter{pstartL}{1}
2144   \global\pstartnumtrue
2145   \l@dcalc@\maxoftwo{\the\usecount{l@dmaxlinesinpar\the\l@dpscL}}%
2146                           {\the\@donetotallinesL}%
2147                           {\usecount{l@dmaxlinesinpar\the\l@dpscL}}%

```

```

2148      \global\@donetotallinesL \z@
2149      \global\advance\l@dpscL \@ne
2150      \fi
2151  \fi
2152 \fi}

2153 \newcommand*{\get@nextboxR}{%
2154   \ifvbox\namebox{\l@dRcolrawbox\the\l@dpscR}\% box is not empty
2155   \else%                                box is empty
2156     \ifnum\useunamecount{\l@dmaxlinesinpar\the\l@dpscR}>\@donetotallinesR
2157     \else
2158       \ifwrittenlinesR
2159       \else
2160         \@writelinesinparR
2161         \writtenlinesRtrue
2162       \fi
2163       \ifnum\l@dnumpstartsR>\l@dpscR
2164         \writtenlinesRfalse
2165         \ifbypstart@R
2166           \ifnum\value{pstartR}<\value{pstartRold}
2167           \else
2168             \global\line@numR=0
2169             \resetprevline@
2170           \fi
2171         \fi
2172         \addtocounter{pstartR}{1}
2173         \global\pstartnumRtrue
2174         \l@dcalc@maxoftwo{\the\useunamecount{\l@dmaxlinesinpar\the\l@dpscR}}%
2175                     {\the\@donetotallinesR}\%
2176                     {\useunamecount{\l@dmaxlinesinpar\the\l@dpscR}}\%
2177         \global\@donetotallinesR \z@
2178         \global\advance\l@dpscR \@ne
2179       \fi
2180     \fi
2181   \fi}
2182 
```

25 Page break/no page break, depending on the specific line

We need to adapt the macro of the homonym section of elemac to elepar.

- \prev@pbR The \l@prev@pbR macro is a etoolbox list, which contains the lines in which page breaks occur (before or after). The \l@prev@nopbR macro is a etoolbox list, which contains the lines in which NO page breaks occur (before or after).
- \prev@nopbR

```

2183 \def\l@prev@pbR{}
2184 \def\l@prev@nopbR{} 
```

\ledpbR The \ledpbR macro writes the call to \led@pbR in line-list file. The \ledpbnumR macro writes the call to \led@pbnumR in line-list file. The \lednopbnumR macro writes the call to \led@nopbR in line-list file. The \lednopbnumR macro writes the call to \led@nopbnumR in line-list file.

```
2185 \newcommand{\ledpbR}{\write\linenum@outR{\string\led@pbR}}
2186 \newcommand{\ledpbnumR}[1]{\write\linenum@outR{\string\led@pbnumR{#1}}}
2187 \newcommand{\lednopbR}{\write\linenum@outR{\string\led@nopbR}}
2188 \newcommand{\lednopbnumR}[1]{\write\linenum@outR{\string\led@nopbnumR{#1}}}
```

\led@pbR The \led@pbR add the absolute line number in the \prev@pbR list. The \led@pbnumR \led@pbnumR add the argument in the \prev@pbR list. The \led@nopbR add \led@nopbR the absolute line number in the \prev@nopbR list. The \led@nopbnumR add the \led@nopbnumR argument in the \prev@nopbR list.

```
2189 \newcommand{\led@pbR}{\listcsxadd{l@prev@pbR}{\the\absline@numR}}
2190 \newcommand{\led@pbnumR}[1]{\listcsxadd{l@prev@pbR}{#1}}
2191 \newcommand{\led@nopbR}{\listcsxadd{l@prev@nopbR}{\the\absline@numR}}
2192 \newcommand{\led@nopbnumR}[1]{\listcsxadd{l@prev@nopbR}{#1}}
```

26 The End

;/code;

Appendix A Some things to do when changing version

Appendix A.1 Migration to elepar 1.4.3

Version 1.4.3 corrects a bug added in version 0.12, which made hanging verse automatically flush right, despite the given value of the first element of the `\setstanzaindent` command.

If, however, you want to return to automatic flush-right margins for verses with hanging indents, you have to redefine the `\hangingsymbol` command.

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

See the two following examples:

With standard `\hangingsymbol`:

A very long verse should be sometime hanged. The position of the hang verse is fixed.

With the modification of `\hangingsymbol`:

A very long verse should sometimes be hanging. And we can see that an hanging verse is flush right.

References

- [LW90] John Lavagnino and Dominik Wujastyk. ‘An overview of EDMAC: a PLAIN TeX format for critical editions’. *TUGboat*, **11**, 4, pp. 623–643, November 1990. (Code available from CTAN in `macros/plain/contrib/edmac`)
- [Wil02] Peter Wilson. *The memoir class for configurable typesetting*. November 2002. (Available from CTAN in `macros/latex/contrib/memoir`)
- [Wil04] Peter Wilson and Maïeul Rouquette. *elemac A presumptuous attempt to port EDMAC, TABMAC and EDSTANZA to LaTeX*. December 2004. (Available from CTAN in `macros/latex/contrib/eledmac`)

Index

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.

Symbols		
\&	1555, 1556, 1560, 1577, 1598	\@M
		1566
		\@adv
		359, 640, 641

- \@afterindentfalse 763
 \@arabic 215, 216, 814, 817
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Change History

v0.1	General: First public release	1	eledmac 0.15).	44
v0.10	General: \edlabel commands on the right side are now correctly indicated.	1	\Columns: Line numbering by pstart.	62
	\edlabel commands which start a paragraph are now put in the right place.	1	\get@nextboxR: Change \get@nextboxL and \get@nextboxR to allow to disable line numbering (like in eldedmac 0.15).	72
v0.11	General: Change \do@lineL and \do@lineR to allow line numbering by pstart (like in eldedmac 0.15).	39	Pstart number can be printed in side	72
	Lineation can be by pstart (like in eldedmac 0.15).	16	v0.12	General: New new management of hangingsymbol insertion, preventing undesirable insertions.
	New management of hangingsymbol insertion, preventing undesirable insertions.	54		54
	Prevent shift of column separator when a verse is hanged	55	v0.2	General: Added section of babel related code
	\affixline@numR: Changed \affixline@numR to allow to disable line numbering (like in			58
				Fix babel problems
				1
			\Columns: Added \l@dchecklang and \l@duselanguage to \Columns	61
			\Pages: Added \l@duselanguage to \Pages	66
v0.3	General: Added \do@lineLhook			

and \do@lineRhook	40	v0.3.b
Reorganize for ledarab	1	General: Improved parallel page balancing
\affixline@numR: Changed \affixline@numR to match new eledmac	44	v0.3.c
\do@actions@nextR: Used \do@actions@fixedcode in \do@actionsR	42	General: Compatibilty with Poly- glossia
\do@lineL: Added \do@lineLhook to \do@lineL	39	v0.3a
Simplified \do@lineL by using macros for some common code	39	\line@marginR: Don't just set \line@marginR in \linenummargin
\do@lineR: Changed \do@lineR similarly to \do@lineL	40	v0.3b
Leftside: Added hooks into Left- side environment	34	\Pages: Added \l@dminpagelines calculation for succeeding page pairs
\flag@end: Removed extraneous spaces from \flag@end	30	v0.3b
\ifledRcol: Moved \ifl@dpairing to eledmac	13	General: No more ledparpatch. All patches are now in the main file.
\ifpst@rtedR: Moved \ifpst@rtedL to eledmac	14	v0.4
\l@dlinenumR: Simplified \leftlinenumR and \rightlinenumR by introducing \l@dlinenumR	19	General: Corrections about \section and other titles in numbered sections
\l@dnumpstartsR: Moved \l@dnumpstartsL to eledmac .	57	v0.5
\ledsavedprintlines: Simpli- fied \printlinesR by using \setprintlines	49	v0.6
\ledstrutR: Added \ledstrutL and \ledstrutR	68	General: Be able to us \chapter in parallel pages.
\normalbfnoteX: Removed extraneous spaces from \normalbfnoteX	54	v0.7
\Pages: Added \ledstrutL to \Pages	66	General: Option 'shiftedverses' which make there is no blank between two parallel verses with inequal length.
Added \ledstrutR to \Pages .	66	v0.8
\Rightsidehookend: Added \Leftsidehook, \Leftsidehookend, \Rightsidehook and \Rightsidehookend	35	General: Possibility to have a sym- bol on each hanging of verses, like in the french typogra- phy. Redefine the commande \hangingsymbol to define the character.
\sublinenumrepR: Added \linenumrepR and \sublinenumrepR	19	v0.9
v0.3.a		General: Possibility to number \pstart
General: Minor \linenummargin fix	1	Possiblity to number the pstart with the commands \numberpstarttrue.
		\ifledRcol: Moved \ifl@ledRcol and \ifnumberingR to eledmac
		v0.9.1
		General: The numbering of the pststarts restarts on each \beginnumbering.

v0.9.2	General: Debug : with <code>\Columns</code> , the hanging indentation now runs on the left columns and the hanging symbol is shown only when <code>\stanza</code> is used.	1	<code>\l@dcnote</code> : Debug on the left notes of the right column.	52
v0.9.3	General: <code>\thepstartL</code> and <code>\thepstartR</code> use now <code>\bfseries</code> and not <code>\bf</code> , which is deprecated and makes con- flicts with memoir class.	1	<code>\l@dcnote</code> : Allow to use com- mands in sidenotes, like it was introduced by elemac 1.0.	52
v1.0	General: Compatibility with ele- mac. Change name to elepar.	1	<code>\normalbfnoteX</code> : Allows one to redefine <code>\thefootnoteX</code> with alph when some packages are loaded.	54
v1.0.1	General: Correction on <code>\numberonlyfirstinline</code> with lineation by pstart or by page.	1	<code>\l@dcnote</code> : Fix bug with nor- mal familiar footnotes when mixing RTL and LTR text.	54
v1.1	General: Shiftedverses becomes shiftedpstarts.	1	<code>\astanza</code> : Enable the use of stan- zaindentsrepetition within as- stanza environment.	55
v1.1.1	<code>\pstartR</code> : Add <code>\labelpstarttrue</code> (from elemac).	36	<code>\line@list@stuffR</code> : Open / close immediately the line-list file when in minipage, except if the minipage is a ledgroup.	29
v1.1.2	<code>\pstartR</code> : Correct <code>\pstartR</code> bug in- troduced by 1.1.	36	<code>\l@dcnote</code> : Corrects a false hanging verse when a verse is exactly the length of a line.	1
v1.2	<code>\affixside@noteR</code> : Remove spuri- ous space between line number and line content	53	<code>\inserthangingsymbolR</code> : Hang verse is now not automatically flush right.	54
v1.2.1	General: Support for <code>\led<section></code> commands in parallel texts.	1	<code>\pendL</code> : Spurious spaces in <code>\pendL</code>	38
v1.3	<code>\initnumbering@sectcountR</code> : For the right section, the counter is defined only once.	15	<code>\pendR</code> : Spurious spaces in <code>\pstartR</code>	39
v1.3.2	General: Manage RTL language.	32	<code>\pstartR</code> : Spurious spaces in <code>\pstartL</code> and <code>\pstartR</code>	36
v1.3.3	General: Debug with some classes.	1	<code>\l@dcnote</code> : Add, as in elemac, fea- tures to manage page breaks.	1
	<code>\l@dbfnote</code> : Spurious space with footnote in right column.	53	<code>\sublinenumincrement*</code> : Add starred version of <code>\firstlinenum</code> , <code>\linenumincrement</code> , <code>\firstsublinenum</code> , <code>\sublinenumincrement</code> to change both Left and Right- side.	18