

# The `combine` class and the packages `combinet`, `combnat` and `combcite`\*

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## Abstract

The `combine` class can be used to assemble a group of individual L<sup>A</sup>T<sub>E</sub>X documents into a single document, such as required for a conference proceedings. Typically the documents are all of the same class, but with some limitations on ordering may be of different classes (e.g., several `articles` with one `letter`). The class requires the `keyval` package.

The accompanying `combinet` and `combnat` packages respectively let the titles of imported documents be added to the main ToC, and enable the `combine` class and the `natbib` package to cooperate. The `combcite` package enables the `cite` package to cooperate.

## Contents

<b>1</b>	<b>Introduction</b>	<b>2</b>
<b>2</b>	<b>The <code>combine</code> class</b>	<b>2</b>
2.1	Class options . . . . .	3
2.2	Class commands and environments . . . . .	6
2.3	Imports in subdirectories . . . . .	11
<b>3</b>	<b>The <code>combinet</code> package</b>	<b>11</b>
<b>4</b>	<b>The <code>combnat</code> package</b>	<b>12</b>
<b>5</b>	<b>The <code>combcite</code> package</b>	<b>12</b>

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<sup>†</sup>Dick Nickalls ([dicknickalls@compuserve.com](mailto:dicknickalls@compuserve.com)) provided several requirements and suggestions. He also very helpfully tested earlier experimental versions.

<b>6</b>	<b>Caveats</b>	<b>13</b>
<b>7</b>	<b>The <code>combine</code> class code</b>	<b>14</b>
<b>8</b>	<b>Preliminaries</b>	<b>15</b>
<b>9</b>	<b>Kernel modifications (and potential additions)</b>	<b>18</b>
9.1	Document commands and environments . . . . .	20
9.2	Titling commands . . . . .	26
9.3	Cross referencing . . . . .	29
9.4	Page styles and numbering . . . . .	33
<b>10</b>	<b>New class commands</b>	<b>35</b>
<b>11</b>	<b>The <code>combinet</code> package code</b>	<b>41</b>
<b>12</b>	<b>The <code>combnat</code> package code</b>	<b>45</b>
<b>13</b>	<b>The <code>combcite</code> package code</b>	<b>56</b>
<b>A</b>	<b>Original code</b>	<b>59</b>

## 1 Introduction

Questions about making a collection of different articles into a single document seem to pop up fairly regularly on the `comp.text.tex` newsgroup. The `combine` class provides a solution for this problem.

This manual is typeset according to the conventions of the L<sup>A</sup>T<sub>E</sub>X DOC-STRIP utility which enables the automatic extraction of the L<sup>A</sup>T<sub>E</sub>X macro source files [GMS94].

Section 2 describes the usage of the `combine` class and Sections 3 and 4 describe the `combinet` and `combnat` packages. Section 5 describes the `combcite` package. Commented source code for the class is in Section 7. The class requires the `keyval` package to be available. Commented source code for the `combinet` package is in Section 11, for `combnat` is in Section 12 and for `combcite` is in Section 13.

Note that the version number and date given for this file does not necessarily match version numbers or dates for the class and packages.

## 2 The `combine` class

The `combine` class enables a group of individual L<sup>A</sup>T<sub>E</sub>X documents to be imported and assembled into a single document. All the individual documents should be of the same class (e.g., all `article` or all `report`).

Sectioning, cross-referencing, bibliographies, etc., are local within each imported document. Various means are provided for controlling local Table of Contents, the format of `\maketitle`, and so on, without having to make any changes to the original of an imported document.

Here is a simple example file which might be the skeleton for a conference proceedings.

```

\documentclass[11pt]{combine}

\title{Proceedings of the ...}
\author{A. N. Editor\thanks{Support ...}}
\date{29 February, 2000}

\begin{document}
\pagestyle{combine}      % use the combine page style
\maketitle               % main title
\tableofcontents        % main ToC
\clearpage

\section{Editor's introduction} \label{intro} % into main ToC (section 1)

    In the article by A.~N.~Author on page~\pageref{art1} ...

\begin{papers}           % start of individual articles/papers
\coltoctitle{An article} % first article title into main ToC
\coltocauthor{A.~N.~Author} % first authors into main ToC
\label{art1}
\import{art1}           % first article, may have own ToC,
                        % bibliography, etc.
\coltoctitle{Another article}
\coltocauthor{A.~N.~Other}
\label{art2}
\import{art2}
\end{papers}           % end of individual articles/papers

\clearpage
\section{Acknowledgements} % into main ToC (section 2)

    Among the many ...

\end{document}

```

## 2.1 Class options

As well as providing all the class options appropriate for the class of the individual documents, the combine class provides the following additional options:

- memoir, book, report, and letter. By default the article class is assumed for both the main and the imported documents. These options change the class

to memoir, book, report or letter, respectively.

- `colclass=<class>`. This option changes the ‘classes’ to `<class>`. For example, specifying `colclass=phdthesis` will use the `phdthesis` class<sup>1</sup> definitions throughout the entire document.

Note that if you use this option there are likely to be L<sup>A</sup>T<sub>E</sub>X warnings about Unused global option(s): [`colclass=...`].

- `classes`. This option enables the imported documents to be of different classes. For example, embedding a letter into a compendium of articles. Using this option may induce a plethora of L<sup>A</sup>T<sub>E</sub>X errors and the printed results may be unpredictable. If this happens, try hitting ‘q’ to put L<sup>A</sup>T<sub>E</sub>X into its ‘quiet batch’ processing mode and then examine the typeset result for usability.

Different classes of imported documents should not be mixed within a single `papers` environment. Also, imported documents whose class is the same but which differs from the main class should be within a single `papers` environment. For example, if several letters are to be imported into a collection of articles, the letters must not be scattered between different `papers` environments, although the imported articles can be scattered.

- `packages`. By default all `\usepackage` commands in imported documents are ignored. If this is not desired, then the `packages` option will enable the imported `\usepackage` commands(s). If this option is used, then only the first occurrence of a package is actually used and is not available to any later imported documents.

Generally speaking, it is advisable to put all `\usepackage` commands into the preamble of the main document.

- `layouts`. By default, a single setting of the page layout is used throughout the document. The `layouts` option takes account of any changes to the `\textwidth`, `\textheight`, etc., in the imported documents.
- `folios`. The page numbers are sequential throughout the document. When the `plain` page style is used, the `folios` option will display the local page numbers of imported documents as well as the the main page number. This may have unfortunate consequences on the page numbers in ToC, etc., entries as they may well refer to local rather than global page numbers.
- `notoc`. Disables the inclusion of a Table of Contents in any imported document.
- `nofof`. Disables the inclusion of a List of Figures in any imported document.
- `notot`. Disables the inclusion of a List of Tables in any imported document.

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<sup>1</sup>Whatever that is.

- `maintoc`. Adds all imported documents ToC, LoF, LoT, etc., entries to the main document ToC, LoF, ...
- `notitle`. Disables title printing by any `\maketitle` in any imported document.
- `noauthor`. Disables author printing by any `\maketitle` in any imported document.
- `date`. By default, date printing by any `\maketitle` in any imported document is disabled. This option causes the date(s) to be printed.
- `nomaketitle`. Disables all printing by any `\maketitle` in any imported document.
- `nopubindoc`. Disables the printing of the `\published` information within an imported document.
- `nopubintoc`. Disables the printing of the `\published` information within the main ToC.
- `onebib`. Disables imported bibliographies and puts all citations in the main document's bibliography.
- `combinedbib`. Individual imported bibliographies and also all citations put into the main document's bibliography.

The `combine` class may be able to incorporate any class of imported documents by setting an appropriate value for the `colclass` option and perhaps doing some additional work.

For example, if you want to have a collection of examination papers which were each is originally produced using the `exam` class, then start off with:

```
\documentclass[... , colclass=exam]{combine}
```

The `exam` class, though, does a couple of things that prevent `combine` and `exam` from working well together:

- `exam` has its own version of `\section` which is totally at odds with the normal article definition, and `\section*` is used by the `\tableofcontents` command.
- `exam` does wonderful things at the end of a document. This is alright for imported documents in a `papers` environment but is an abject failure at the final end of the main document.

To get round these problems, put the following in the preamble to the main document:

```
\makeatletter
\let\oldsection\section      % keep exam's definition of \section
\renewcommand{\section}{%    % article's definition of \section
  \@startsection{section}{1}{\z0}%
    {-3.5ex \@plus -1ex \@minus -.2ex}%
```

```

{2.3ex \@plus .2ex}%
{\normalfont\Large\bfseries}}
\makeatletter

```

and in the document put:

```
\let\section\oldsection
```

immediately before the first `papers` environment.

For the end document problem, put:

```

\makeatletter
\let\@enddocumenthook\@oldenddocumenthook
\makeatother

```

immediately before the main document's `\end{document}`.

## 2.2 Class commands and environments

Within a `combine` class document you can use any commands that are supported by the selected class. The following additional commands and environments are also provided.

`papers` The environment `\begin{papers}[text/code]`...`\end{papers}` provides a wrapper around imported file(s). Effectively, it modifies any `\documentclass` command or `document` environment within an imported file so that L<sup>A</sup>T<sub>E</sub>X does not stop with an error at meeting these, or preamble-only commands like `\usepackage`, in the middle of a document.

The optional argument is executed immediately at the start of the environment and its default value is `\cleardoublepage`. To avoid any forced page breaking you can call the environment with an empty optional argument (e.g., `\begin{papers}[]`).

`\import` The command `\import{texfile}` is a cross between the `\input` and `\include` commands, and should only be used within a `papers` environment. *texfile* is the name of a L<sup>A</sup>T<sub>E</sub>X file *without* the `.tex` extension. For example, `\import{fred}` will attempt to read in a file called `fred.tex`. The *texfile* should be a complete L<sup>A</sup>T<sub>E</sub>X document file, from `\documentclass...` to `\end{document}`. The contents of *texfile* will be typeset in the document at the point where it is imported, including any document title (via a `\maketitle`), Table of Contents, ..., Bibliography, etc.

`\maketitle` The `combine` class provides a `\maketitle` command, together with `\title`, `\author` and `\date` commands like those in the `book/report/article` classes. A `titlepage` option is only supported if the main class has a `titlepage` option. For example, if the main class is `article` then both `\maketitle` and the `titlepage` option are supported, but if the main class is `letter` then only the `\maketitle` command is provided.

`\maintitlefont` These commands control the typesetting of the main document's `\maketitle`  
`\postmaintitle` command. The `\title` is processed between the `\maintitlefont` and `\postmaintitle`  
`\mainauthorfont` commands; that is, like:  
`\postmainauthor` `{\maintitlefont \title \postmaintitle}`  
`\maindatefont`  
`\postmaindate`

and similarly for the `\author` and `\date` commands. The `\...main...` commands are initialised to mimic the normal result of `\maketitle` typesetting in the `article/report` classes. For example, the default definitions of the `\...maintitle...` and `\...mainauthor...` commands are:

```
\newcommand{\maintitlefont}{\begin{center}\LARGE}
\newcommand{\postmaintitle}{\par\end{center}\vskip 0.5em}
\newcommand{\mainauthorfont}{\begin{center}
\large \lineskip 0.5em%
\begin{tabular}[t]{c}}
\newcommand{\postmainauthor}{\end{tabular}\par\end{center}}
```

They can be renewed to obtain different effects, for instance removing the `center` environment from `\...title...` will result in the title being typeset as a normal paragraph.

`\importtitlefont` Without any options, the `\title` and `\author` commands are typeset by `\postimporttitle` `\maketitle` commands in imported documents. Like the main document's `\importauthorfont` `\maketitle`, the typesetting is controlled by these `\...import...` commands. `\postimportauthor` The default definition for the title and author differ a little from the main document style, and are:

```
\newcommand{\importtitlefont}{\begin{center}\LARGE\bfseries}
\newcommand{\postimporttitle}{\par\end{center}}
\newcommand{\importauthorfont}{\begin{center}
\large\itshape \lineskip 0.5em%
\begin{tabular}[t]{c}}
\newcommand{\postimportauthor}{\end{tabular}\par\end{center}}
```

The commands can be renewed to obtain different formatting.

Note that if the `titling` package is used with the `combine` class, the `titling` `\maketitle` typesetting commands are unavailable, being replaced by the corresponding `combine` commands above. Other aspects of titling, like the `\thetitle` command, are still available for use.

`\bodytitle` The `\bodytitle`[*short title*]{*long title*} command is similar to a `\chapter` or `\section` command, depending on the *class* of document. It may be used for adding a numbered title heading into the main document and ToC for the following `\import{texfile}`. There is also a starred version of the command, which produces an unnumbered title heading and makes no entry in the ToC. The numbering used for `\bodytitle` is independent from any other numbering sequence.

`\coltoctitle` The two commands `\coltoctitle`{*title*} and `\coltocauthor`{*author*} are `\coltocauthor` for adding *title* and *author* to the main ToC, where *title* is the compiler's choice for the title of the following `\import{texfile}` and *author* is for the names of the authors.

`\published` The command `\published`[*short*]{*long*} can be used for putting the *long* text into the body of the main document. If the optional argument is not used,

then *⟨long⟩* is also added to the main ToC. If the optional argument is used, then *⟨short⟩* instead of *⟨long⟩* is added to the ToC. The expectation is that this will be used for noting the original publication information for an imported document.

`\pubfont`

In the document body the text of the `\published` command is typeset using `\pubfont`. By default this is defined as `{\normalfont\centering}` to give centered text in the normal font. If, for example, you wanted it to be typeset ragged right in an italic font you would do:

```
\renewcommand{\pubfont}{\itshape\raggedright}
```

`\toctitleindent`

`\tocauthorindent`

`\tocpubindent`

`\toctocindent`

These are all lengths, and their values can be changed using `\setlength`. They control the extra indentation of an imported document's title, authors, publication information and section headings within the main ToC. The default value of `\toctitleindent` is 0em and the default for the other four is 1.5em. If any values are changed, this must be done before the `\tableofcontents` command in the main document. For example, the title texts are aligned at the left margin; to align them with the default position of authors do:

```
\setlength{\toctitleindent}{1.5em}
```

`\toctitlefont`

`\tocauthorfont`

`\tocpubfont`

These macros specify the fonts to be used for typesetting the imported titles, authors and publishing information within the main ToC. Their default definitions are:

```
\newcommand{\toctitlefont}{\bfseries} bold titles
```

```
\newcommand{\tocauthorfont}{\itshape} italic authors
```

```
\newcommand{\tocpubfont}{\normalfont} normal font for published
```

The class tries to keep any group of title/author/published entries in the ToC on one page, but sometimes TeX will insert a pagebreak anyway. The way of combating this is to make sure that the ToC page is broken *before* the group. You can do this like:

```
\addtocontents{toc}{\protect\pagebreak}
```

```
\coltoctitle{...} \coltocauthor{...} etc.
```

`\erasetitling`

This macro 'undefines' any previous `\coltoctitle`, `\coltocauthor` and/or `\published` commands; it is principally provided for use with the `combinet` package.

`combine`

A new `combine` pagestyle is provided. This is like the `plain` pagestyle except that page numbers are put at the bottom outside corner of the page. This is the default pagestyle for the `combine` class.

Provided a `plain` (or `combine`) page style is used the pages are numbered in sequence throughout the document. If an imported document has any empty page style pages these will not be numbered.

Unless the `folios` option is used, all references to page numbers will be to the global page number. With the `folios` options some references will be to global page numbers and some to local page numbers.

You can, of course, define your own heading styles; I recommend the `fancyhdr` package [Oos96] if you do this. For example, if you had a collection of papers and you wanted to have the headers on the lefthand pages to have the title of the collection and the righthand pages to have the name of the current author(s), you can do this along the following lines.



```

\documentclass[report,twoside]{combine}
\usepackage{fancyhdr}
\title{The collection}
\author{A. N. Editor}
\pagestyle{fancy}
\fancyhead[RO]{A. N. Editor}
\fancyhead[LE]{The collection}
\fancyfoot{}
\fancyfoot[LE,RO]{\thepage}
\newcommand{\authorhead}[1]{%
  \coltoauthor{#1}
  \fancyhead[RO]{#1}
}
...
\begin{document}
\maketitle
%% Editors introduction, ToC, etc
\begin{papers}
\coltoctitle{Paper 1}
\authorhead{A. N. Author}
  \import{paper1}
\cleardoublepage
\coltoctitle{Paper 2}
\authorhead{A. N. Other}
  \import{paper2}
...

```

In order to ensure that all the material in an imported document is typeset, there is an inbuilt `\clearpage` command within the imported document's `\end{document}`. Thus, any material after an `\import` command will start on a new page.

Here is another example file which might be the skeleton for a thesis that includes a copy of a published paper.

```

%\documentclass{thesis} % replace this by
\documentclass[colclass=thesis,classes,layouts]{combine}
... packages etc.,

\title{Observations on the ...}
\author{A. Candidate}
\date{1 April, 2000}
\addtolength{\toctitleindent}{2.3em} % extra main ToC indentation
\addtolength{\tocauthorindent}{2.3em}
\addtolength{\tocpubindent}{2.3em}

\begin{document}
\pagestyle{combine} % use the combine page style
\maketitle % main title
\tableofcontents % main ToC

```

```

\clearpage
...
lots of remarkable research results
...
\appendix
...
\section{Publication}
\begin{papers}[]
\coltoctitle{...}
\published{Originally published in the
           \textit{Journal of Irreproducible Results}, 1987}
\import{mypaper}
\end{papers}
...

\bibliography{refs}      % main bibliography
\end{document}

```

Each imported file generates its own .aux, .toc, etc., files. If a BibTeX database is used for the literature references in an imported document, then BibTeX must be run against the imported document, *not* the main document, to resolve the citations. Citations are local to each imported document. There can, of course, also be a bibliography for citations made in the main document, as shown in the example file above.

`\provideenvironment` This macro is like the `\providecommand` macro except that it applies to an environment instead of a command. It is required internally by the `combine` class.

`\providelength` `\providecounter` These macros are used internally. They are `\provide...` versions of the `\newlength` and `\newcounter` commands.

`\zeroextracounters` The class attempts to initialise the counters used by each imported document. For example, the figure, equation, etc., counters are zeroed for each document. The `\zeroextracounters` command can be redefined so that it includes the zeroing of any additional counters that might have been introduced in a package or defined by the author. For example, if two different imports both define a (new) counter called, say, `mycounter`, then redefine the command like:

```

\renewcommand{\zeroextracounters}{%
  \@ifundefined{c@mycounter}{\setcounter{mycounter}{0}}
}

```

`\appendiargdef` The (internal) command `\appendiargdef{<macro>}{<stuff>}` appends `<stuff>` at the end of the current definition of `<macro>`, where `<macro>` is the name of a macro (including the backslash) which takes one argument. For example the following are two equivalent definitions of `\mymacro`:

```

\newcommand{\mymacro}[1]{#1 is a bagpiper}
\appendiargdef{\mymacro}{ and of course is tone deaf}
% or

```

```
\newcommand{\mymacro}[1]{#1 is a bagpiper and of course is tone deaf}
```

`\emptyAtBeginDocument`

Some combinations of circumstances cause an infinite recursion at the start of an imported document; in particular the combination of `combine + graphicx + caption2 + pdflatex` causes this. In this case the solution was to put `\emptyAtBeginDocument` immediately after the initial `\begin{document}`. It may also have worked if it had been added after each `\begin{papers}` or before each `\import{}`. An error message about being out of stack space may indicate recursion. Judicious use of `\emptyAtBeginDocument` may resolve the problem.

### 2.3 Imports in subdirectories

Authors may find it convenient to put the LaTeX source files for imported documents into subdirectories of the directory for the main document. Perhaps the easiest way to make this work is to set an environment variable so that LaTeX will look in the subdirectories of the current working directory for files it can't find.

I use a teTeX system and can only talk about that distribution. The relevant environment variable, at least for document files, is `TEXINPUTS`. An example setting for this is:

```
TEXINPUTS=.:/:${LOCALTEX}//:
```

The fragment `./` tells LaTeX to look for files in the current directory, and recursively in its subdirectories. The fragment `:${LOCALTEX}//` tells LaTeX to look for files in the place defined by the environment variable `LOCALTEX`, and recursively in its subdirectories. The final `:` tells LaTeX to look in the standard teTeX defined places.

## 3 The `combinet` package

The `combinet` (COMBINE Title) package, which should only be used in conjunction with the `combine` class, modifies the `\maketitle` command of all imported documents so that the imported document's title and/or author, if defined, are automatically added to the main document's ToC.

This is presented as a package rather than as part of the `combine` class as some unfortunate side effects may become apparent.

If a `\coltoctitle` or `\coltocauthor` command has been given immediately prior to the import, then these will be put into the main ToC instead of the `\maketitle` texts. The `\erasetitling` command can be used to disable any prior `\coltoctitle`, `\coltocauthor` and `\published` commands.

The package takes the following options.

- `nomtitle`. Disable the `\maketitle` title from being added to the main ToC.
- `nomauthor`. Disable the `\maketitle` author from being added to the main ToC.

- **nothanks.** By default, the contents of a `\thanks` command will be added to the main ToC. This option prevents that, but may have unfortunate side effects if any `\title` or `\author` command has any embedded commands within the text.
- **pub.** Put the text of an immediately prior `\published` command after the `\maketitle` typesetting, and add the text to the main ToC after any title or author. Remember that the `combine` class options `nopubindoc` and `nopubindoc` can be used to inhibit printing of `\published` information.
- **pubtop.** Put the text of an immediately prior `\published` command at the top of the `\maketitle` typesetting, and add the text to the main ToC after any title or author.

As noted above, embedded commands within a `\title` or `\author` may not transform well if they appear in the main ToC. In such cases you can use `\coltoctitle` or `\coltocauthor` for adding appropriate text to the main ToC, not forgetting to disable these after the import via `\erasetitling`.

## 4 The `combnat` package

The `combine` class and Patrick Daly’s `natbib` package [Dal99] both redefine some of the same basic LaTeX macros, and naturally the redefinitions are incompatible<sup>2</sup>.

The `combnat` (COMBine NATbib) package hopefully resolves this problem. With the `combine` class you use `combnat` instead of `natbib`. That is, instead of:

```
\usepackage[⟨natbib-options⟩]{natbib}, simply do
\usepackage[⟨natbib-options⟩]{combnat}
```

in the preamble of the main document. The package automatically calls the `natbib` package with the given `⟨natbib-options⟩` and then redefines some of the `natbib` redefinitions to ensure `combine/natbib` compatibility.

For details on the `⟨natbib-options⟩` and the other facilities, read the `natbib` documentation [Dal99].

## 5 The `combcite` package

The `combine` class and Donald Aresneau’s `cite` package [Ars03] both redefine some of the same basic LaTeX macros, and naturally the redefinitions are incompatible<sup>3</sup>

The `combcite` (COMBine CITE) package hopefully resolves this problem. With the `combine` class you use `combcite` instead of `cite`. That is, instead of:

```
\usepackage[⟨cite-options⟩]{cite}, simply do
\usepackage[⟨cite-options⟩]{combcite}
```

in the preamble of the main document. The package automatically calls the `cite` package with the given `⟨cite-options⟩` and then redefines some of the `cite` redefinitions to ensure `combine/cite` compatibility.

<sup>2</sup>Discovered by Thomas Hertweck (Thomas.Hertweck@gpi.uni-karlsruhe.de) in June 2001.

<sup>3</sup>Discovered by Marcilio Alves (maralves@usp.br) in November 2003.

For details on the *<cite-options>* and the other facilities, read the cite documentation [Ars03].

The `combcite` package requires the November 2003 version 4.01 of `cite`. This version covers the functions provided by the `overcite` package. More precisely `\usepackage[...]{overcite}` is implemented as `\usepackage[superscript,...]{cite}`

## 6 Caveats

$\LaTeX$  was designed to typeset a single document, where the document has one and only one `\documentclass` command and one and only one `document` environment. The `combine` class attempts to handle a document that has multiple `\documentclass` commands and multiple `document` environments. In order to do this certain parts of the  $\LaTeX$  kernel code has had to be modified. Unfortunately, to make the usage of `combine` completely transparent to the user would require very major surgery, with a high probability that with my skills the patient would die; being able to remove a hangnail does not imply the ability to perform a heart transplant.

It is, of course, assumed that each imported document processes without error as an individual document.

Essentially, be prepared for the unexpected, usually indicated by a rash of  $\LaTeX$  error messages about undefined commands or about defining an already defined command. These are usually caused by incorrect grouping.

Commands, etc., defined in the main document are available to all imported documents. The `papers` environment forms a group. Commands defined within a group are local to the group and are not visible outside it. Another point is that  $\LaTeX$  will read the code for any given class or package only once. These facts have some consequences.

- The facilities provided by any package that is used by an imported file are only available within the first `papers` environment in which the package is called for. This is why it is recommended that all packages should be called for in the main document.
- Similarly for a class that is not the main class. For example, if the main class is `article` and some letters are to be imported, then they must all be in the same `papers` environment. If they are in multiple `papers` environments, then only the first of these will have access to commands like `\address` which are defined by the `letter` class (which is only read once and whose facilities are then local to the first of the `papers`).
- An imported document does not form a group (if it did, then only a single letter could be imported into an article class collection). If two imports in a single `papers` separately use `\new...` commands with the same *<name>*, then these *<name>*s will be visible throughout the environment.  $\LaTeX$  will then normally report trying to define a pre-existing *<name>*. The solution to

this is either: (a) put the imports into different `papers`, or (b) enclose each import within a `\begingroup ... \endgroup` pair.

Not all problems can be solved by the above methods. For example, consider the case again of importing letters into an article collection. If two letters both define the same  $\langle name \rangle$ , then adding additional grouping will only change the ‘defining a pre-existing  $\langle name \rangle$ ’ problem into the ‘undefined `\address`’ problem. A potential solution in this particular case would be to define all the letter class specific  $\langle name \rangle$ s in the main document.

Within a `papers` environment all `\newcommand` and `\newenvironment` commands are replaced by `\providecommand` and `\provideenvironment` respectively. This should stop L<sup>A</sup>T<sub>E</sub>X from reporting the pre-existing  $\langle name \rangle$  error from these commands, but one and only one of the definitions will be available. `\newlength` and `\newcounter` commands are handled in the same manner. There is no equivalent for `\newtheorem`, but instead the `\newtheorem` command has been made local instead of global, so cunning use of grouping should be able to circumvent the problem of two separate authors creating identically named theorems.

## 7 The `combine` class code

There are various difficulties to be overcome by the `combine` code, some seemingly inherent in T<sub>E</sub>X itself and others by the L<sup>A</sup>T<sub>E</sub>X kernel code. These include, but are not limited to:

- TeX was not designed for processing multiple documents.
- There can only be one `\documentclass` command within a document.
- There are many L<sup>A</sup>T<sub>E</sub>X commands that can only be used in the preamble, and the preamble is closed by the (first) `\begin{document}`.
- There is a single global page number, which may be reset to one at any point in any document. If this occurs in an imported document then the page numbering for the main document is similarly reset.
- `\labels` are global in nature, and with multiple imported documents there are likely to be labels with the same name in two or more of these.
- Many of the kernel (and standard classes) commands use the page number; sometimes the use is buried at the end of a chain of macros.

A design goal for `combine` is that virtually any kind of document should be importable and should be processible without have to make any changes to it. To completely satisfy this would require a rewrite of much of the L<sup>A</sup>T<sub>E</sub>X kernel, which is out of the question. Of necessity some changes have had to be made but these have been limited as far as possible. I think that a collection that consists of documents that are all of the same class should process without interruption.

When there are mixed classes, L<sup>A</sup>T<sub>E</sub>X reads in the code for each class. An example is importing a `letter` class document into an `article` class collection. If the same command is defined by `\newcommand` in two or more of these classes, then L<sup>A</sup>T<sub>E</sub>X complains and I see no way of getting around this without rewriting all the classes and kernel to use `\def` instead of `\newcommand`. In any event, if this happens, try responding to the errors by hitting ‘q’ to put L<sup>A</sup>T<sub>E</sub>X into a batch mode. The typeset result may be useable.

To try and avoid name clashes, all the internal commands include the string `c@l`.

## 8 Preliminaries

Announce the name and version of the class, which requires L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> and the `keyval` package. (This now happens at the top of DTX file so doesn’t appear here.)

```
1 (*usc)
2 \RequirePackage{keyval}
```

`\c@lclass` `\c@lclass` stores the class name, which by default is `article`.

```
3 \newcommand{\c@lclass}{article}
```

`\c@l@tempa` `\c@l@tempa` The next code chunk is based on code posted to the `ctt` newsgroup by Heiko Oberdiek (`oberdiek@ruf.uni-freiburg.de`) on 18 April 2000. The code, by some miraculous means, sets up a keyed class option.

```
4 \define@key{COLCLASS}{colclass}[article]%
5     {\renewcommand{\c@lclass}{#1}
6     \ClassWarningNoLine{combine}
7     {Expect warnings like:\MessageBreak
8     \space\space LaTeX Warning: Unused global option(s):\MessageBreak
9     \space\space\space\space [colclass=#1]}}
10 \let\c@l@tempa@empty
11 \def\c@l@getoptionname#1=#2\@nil{#1}
12 \for\CurrentOption:=\@classoptionslist\do{%
13     \ifundefined{%
14         KV@COLCLASS@\expandafter\c@l@getoptionname\CurrentOption=\@nil
15     }%
16     {% other options
17     }{%
18     \edef\c@l@tempa{\c@l@tempa,\CurrentOption,}%
19     }%
20 }%
21 \edef\c@l@tempa{%
22     \noexpand\setkeys{COLCLASS}{\c@l@tempa}%
23 }
24 \c@l@tempa
25
```

The following `\if...` commands are for implementing various options.

```
\ifc@lclasses
26 \newif\ifc@lclasses
27 \c@lclassesfalse

\ifc@lpackages
28 \newif\ifc@lpackages
29 \c@lpackagesfalse

\ifc@llayouts
30 \newif\ifc@llayouts
31 \c@llayoutsfalse

\ifc@lfolios
32 \newif\ifc@lfolios
33 \c@lfoliosfalse

\ifc@lnotoc
34 \newif\ifc@lnotoc
35 \c@lnotocfalse

\ifc@lnolof
36 \newif\ifc@lnolof
37 \c@lnoloffalse

\ifc@lnolot
38 \newif\ifc@lnolot
39 \c@lnolotfalse

\ifc@lmaintoc
40 \newif\ifc@lmaintoc
41 \c@lmaintocfalse

\ifc@lnodate
42 \newif\ifc@lnodate
43 \c@lnodatetrue

\ifc@lnoauthor
44 \newif\ifc@lnoauthor
45 \c@lnoauthorfalse

\ifc@lnotitle
46 \newif\ifc@lnotitle
47 \c@lnotitlefalse

\ifc@lnomaketitle
48 \newif\ifc@lnomaketitle
49 \c@lnomaketitlefalse
```



```

\ifc@lnopubindoc
    50 \newif\ifc@lnopubindoc
    51 \c@lnopubindocfalse

\ifc@lnopubintoc
    52 \newif\ifc@lnopubintoc
    53 \c@lnopubintocfalse

\ifc@lonebib
    54 \newif\ifc@lonebib
    55 \c@lonebibfalse

\ifc@lcombib
    56 \newif\ifc@lcombib
    57 \c@lcombibfalse

    Now declare and process the options.

    58
    59 \DeclareOption{book}{\def\c@lclass{book}}
    60 \DeclareOption{report}{\def\c@lclass{report}}
    61 \DeclareOption{letter}{\def\c@lclass{letter}}
    62 \DeclareOption{memoir}{\def\c@lclass{memoir}}
    63 \DeclareOption{classes}{\c@lclassstrue}
    64 \DeclareOption{packages}{\c@lpackagestrue}
    65 \DeclareOption{layouts}{\c@llayoutstrue}
    66 \DeclareOption{folios}{\c@lfoliostrue}
    67 \DeclareOption{notoc}{\c@lnotoctrue}
    68 \DeclareOption{nofol}{\c@lnoftrue}
    69 \DeclareOption{notlot}{\c@lnotlottrue}
    70 \DeclareOption{maintoc}{\c@lmaintoctrue}
    71 \DeclareOption{date}{\c@lnotdatefalse}
    72 \DeclareOption{noauthor}{\c@lnoauthortrue}
    73 \DeclareOption{notitle}{\c@lnottitletrue}
    74 \DeclareOption{nomaketitle}{\c@lnomaketitletrue}
    75 \DeclareOption{nopubindoc}{\c@lnopubindoctrue}
    76 \DeclareOption{nopubintoc}{\c@lnopubintoctrue}
    77 \DeclareOption{onebib}{\c@lonebibtrue}
    78 \DeclareOption{combinedbib}{\c@lcombibtrue}
    79 \DeclareOption*{\PassOptionsToClass{\CurrentOption}{\c@lclass}}
    80 \ProcessOptions\relax
    81 \ifc@lcombib
    82 \c@lonebibtrue
    83 \fi
    84

    At this point, load the actual class (as specified by \c@lclass).

    85 \LoadClass{\c@lclass}
    86

```

```

\ifc@lhaschapter \ifc@lhaschapter is TRUE if the loaded class has chapters.
87 \newif\ifc@lhaschapter
88 \c@lhaschapterfalse
89 \ifundefined{chapter}{\c@lhaschaptertrue}
90

\if@titlepage The letter class (and perhaps others) does not have a \maketitle command, and
therefor neither has a titlepage option. In this case we need a new \if@titlepage
for later use when dealing with \maketitle. A side effect of this implementation
is that \maketitle is available for any main document class.
91 \ifundefined{if@titlepage}{\newif\if@titlepage\@titlepagefalse}{

\ifc@ltoctitle Boolean hooks for testing if \coltoctitle, \coltocauthor and \published have
\ifc@ltoctitle been set.
\ifc@lpub 92 \newif\ifc@ltoctitle
93 \c@ltoctitlefalse
94 \newif\ifc@ltocauthor
95 \c@ltocauthorfalse
96 \newif\ifc@lpub
97 \c@lpubfalse
98

colpage colpage is a counter for storing the (current) page number for the main document.
c@lctr c@lctr is a counter for storing the current main document sectioning number. A
\c@section section counter (\c@section) is provided when the class does not have sections.
99 \newcounter{colpage} \setcounter{colpage}{1}
100 \renewcommand{\thecolpage}{\arabic{colpage}}
101 \newcounter{c@lctr}
102 \ifundefined{c@section}{\newcounter{section}}{
103

\c@ltoctfnum These are output stream numbers for local ToC, LoF and LoT files. Allocating
\c@lloffnum new streams for each imported file may cause TEX to run out of streams (there is
\c@lloctfnum a limit of 16).
104 \newwrite\c@ltoctfnum
105 \newwrite\c@lloffnum
106 \newwrite\c@lloctfnum
107

```

## 9 Kernel modifications (and potential additions)

Much of the class code consists of new versions of L<sup>A</sup>T<sub>E</sub>X kernel commands. Redefinitions starting with \c@la... are for commands in the main document. Modifications starting \c@lb... are for commands within imported documents.

```

\provideenvironment To stop LATEX whining when multiple classes are read which happen to define
\c@lprovide@environment commands (via \newcommand) or environments (via \newenvironment) that have
\c@lenvironment
\c@lenva
\c@lenvb
\c@lthrowenv

```

the same names, we need to be able to make L<sup>A</sup>T<sub>E</sub>X use `\providecommand` and `\provideenvironment` instead. Unfortunately the kernel does not provide a `\provideenvironment` command, so here is one based on the code in the `makecmds` package.

```

108 \def\provideenvironment{%
109   \@star@or@long\c@lprovide@environment}
110 \def\c@lprovide@environment#1{%
111   \ifundefined{#1}{%
112     \expandafter\let\csname#1\endcsname\relax
113     \expandafter\let\csname end#1\endcsname\relax
114     \new@environment{#1}{\c@lenvironment{#1}}
115   }
116 \def\c@lenvironment#1{%
117   \@testopt{\c@lenva#1}0}
118 \def\c@lenva#1[#2]{%
119   \@ifnextchar [\c@lenvb#1[#2]]{\c@lthrowenv{#1}{#2}}}}
120 \def\c@lenvb#1[#2][#3]{\c@lthrowenv{#1}{#2}[#3]}
121 \def\c@lthrowenv#1#2#3#4{}
122

```

`\c@lnamethm` As pointed out by Hendri Hondrop<sup>4</sup> `\newtheorem` commands in imported documents can interfere with each other. My solution to this is to make the command `\xnthm` local instead of global. `\c@lnamethm` is a helper macro (removes the `\global` from the `\namedef`s in the original code), and the others are modifications of the originals in `lthm.dtx` (just removing any `\global` commands).

```

123 \ifundefined{newtheorem}{%
124   \newcommand{\c@lnamethm}[3]{%
125     \@namedef{#1}{\thm{#2}{#3}}%
126     \@namedef{end#1}{\endtheorem}}
127   \def\xnthm#1#2[#3]{%
128     \expandafter\ifdefinable\csname #1\endcsname
129     {\@definecounter{#1}\@newctr{#1}[#3]}%
130     \expandafter\xdef\csname the#1\endcsname{%
131       \expandafter\noexpand\csname the#3\endcsname \@thmcountersep
132       \@thmcounter{#1}}%
133     \c@lnamethm{#1}{#1}{#2}}
134   \def@ynthm#1#2{%
135     \expandafter\ifdefinable\csname #1\endcsname
136     {\@definecounter{#1}}%
137     \expandafter\xdef\csname the#1\endcsname{\@thmcounter{#1}}%
138     \c@lnamethm{#1}{#1}{#2}}
139   \def@othm#1[#2]#3{%
140     \ifundefined{c@#2}{\@nocounterr{#2}}%
141     {\expandafter\ifdefinable\csname #1\endcsname
142     {\@namedef{the#1}{\@nameuse{the#2}}
143     \c@lnamethm{#1}{#2}{#3}}}}
144 }

```

<sup>4</sup>Email from `hendri@cs.utwente.nl` on 16 May, 2000.

145

`\providelength` This is a `\provide...` version of `\newlength` (from `ltnlength.dtx`).

```
146 \providecommand{\providelength}[1]{%
147   \ifx #1\undefined
148     \newlength{#1}
149   \fi
150 }
```

`\providecounter` This is a `\provide...` version of `\newcounter` (from `ltncounts.dtx`).

```
151 \providecommand{\providecounter}[1]{%
152   \expandafter\ifx \csname c@#1\endcsname \undefined
153     {\@definecounter{#1}}%
154     \@ifnextchar[{\@newctr{#1}}{-}
155   \else
156     \@ifnextchar[{\c@l@gobbleoptarg}{}
157   \fi
158 }
159 }
```

`\c@l@gobbleoptarg` A macro that discards an optional argument (i.e., the tokens `[optarg]`).

```
160 \def\c@l@gobbleoptarg[#1]{}
161 }
```

`\appendiargdef` The code for this is copied from the `abstract` package, hence the use of `@bs` instead of `c@l` as a distinguishing substring.

```
162 \providecommand{\appendiargdef}[2]{\begingroup
163   \toks@\expandafter{#1{##1}#2}%
164   \edef\@bsx{\endgroup \def\noexpand#1###1{\the\toks@}}%
165   \@bsx}
166 }
```

## 9.1 Document commands and environments

`\c@l@bdocumentclass` The `\documentclass` in imported documents has to be changed so that commands including the `@` sign are legal in the preamble. By default the declared options and class are discarded. When the `classes` option is used, any potential new class file must be read. `\documentclass` is originally defined in `ltnclass.dtx`.

```
167 \ifc@l@classes
168   \newcommand\c@l@bdocumentclass{%
169     \makeatletter                               %% added
170     \let\newcommand\providecommand             %% added
171     \let\newenvironment\provideenvironment    %% added
172   %% \let\documentclass\@twoclasseserror
173   %% \if@compatibility\else\let\usepackage\RequirePackage\fi
174     \@fileswithoptions\@clsextension
175   }
176 \else
```

```

177 \newcommand{\c@lbdocumentclass}[2][\@empty]{%
178   \makeatletter
179 }
180 \fi
181

```

`\c@lbusepackage` The `\usepackage` command (from `ltclass.dtx`) in imported documents is normally disabled. This is the disabled version.

```

182 \ifc@lpackages\else
183 \newcommand{\c@lbusepackage}[2][\@empty]{%
184 \fi
185

```

`\c@lbLoadClass` This is a copy of the `\LoadClass` from `ltclass.dtx`. I found it was needed if an imported document used a class that in its turn used `\LoadClass`.<sup>5</sup>

```

186 \newcommand{\c@lbLoadClass}{%
187   \ifx\@current\@pkgextension
188     \@latex@error{\noexpand\LoadClass in package file}%
189     {You may only use \noexpand\LoadClass in a class file.}%
190   \fi
191   \@fileswithoptions\@clsextension}
192

```

The `\document` command (defined in `ltfiles.dtx`) has to be modified, both for the main document (to allow later preamble commands and to store the job-name of the main document), and similarly but not identically, for the imported documents (output here is to the `\@partaux` file instead of the `\@mainaux` file).

`\c@ltextblock` `\c@ltextblock` is a macro holding some code that is common to both `\c@ladocument` and `\c@lbdocument`.

```

193 \newcommand{\c@ltextblock}{%
194   \@colht\textheight
195   \@colroom\textheight \vsize\textheight
196   \@columnwidth\textwidth
197   \@clubpenalty\clubpenalty
198   \if@twocolumn
199     \advance\columnwidth -\columnsep
200     \divide\columnwidth\tw@ \hsize\columnwidth \@firstcolumntrue
201   \fi
202   \hsize\columnwidth \linewidth\hsize
203 }
204

```

`\c@ladocument`

```

\c@lbdocument 205 \newcommand{\c@ladocument}{%
206   \endgroup
207   \let\mainjobname\jobname           %% added

```

<sup>5</sup>Problem reported by Hans Fredrik Nordhaug [hansfn@mi.uib.no](mailto:hansfn@mi.uib.no) on 2001/08/24.

```

208 \def\c@lmainauxfile{\jobname.aux} %% added
209 \ifx\@unusedoptionlist\@empty\else
210   \@latex@warning@no@line{Unused global option(s):^^J%
211     \spaces[\@unusedoptionlist]}%
212 \fi
213 \c@ltextblock %% a replacement
214 \begingroup\@floatplacement\@dblfloatplacement
215   \makeatletter\let\@writefile\@gobbletwo
216   \global \let \@multiplelabels \relax
217   \input{\c@lmainauxfile}% %% changed
218 \endgroup
219 \if@filesw
220   \immediate\openout\@mainaux\c@lmainauxfile %% changed
221   \immediate\write\@mainaux{\relax}%
222 \fi
223 \process@table
224 \let\glb@currsizel\@empty
225 \normalsize
226 \everypar{}%
227 \ifx\normalsfcodes\@empty
228   \ifnum\sfcode'\.=\@m
229     \let\normalsfcodes\frenchspacing
230   \else
231     \let\normalsfcodes\nonfrenchspacing
232   \fi
233 \fi
234 \noskipsecfalse

```

`\@outputpage` Imported documents may change the page number, which can then mess up the numbering of later pages. The `colpage` counter is used to synchronize the main document page numbering after any import. To do this, it has to be incremented for each typeset page, so this is added to the output routine (described in `ltxoutput.dtx`). This is done here in case any package in the main document has modified `\@outputpage`, as the `showframe` package does.

Similarly, the `\maketitle` command is made to be `\@clamaketitle` in case some other package (e.g., `titling`) has modified `\maketitle` after the `combine` class has done its thing.

```

235 \g@addto@macro{\@outputpage}{\stepcounter{colpage}} %% added
236 \let\maketitle\@clamaketitle %% added

```

`\c@lthechap` Store the initial forms of `\thechapter` or `\thesection` for later restoration after  
`\c@lthesecl` a possible `\appendix`.

```

237 \ifundefined{c@chapter}% %% added
238   {\ifundefined{c@section}}{\let\c@lthesecl\thesection}}%
239   {\let\c@lthechap\thechapter}

240 \let \@refundefined \relax
241 \let\AtBeginDocument\@firstofone
242 \@begindocumenthook

```

```

243 \ifdim\topskip<1sp\global\topskip 1sp\relax\fi
244 \global\@maxdepth\maxdepth
245 %% \global\let\@begindocumenthook\@undefined
246 \ifx\@listfiles\@undefined
247 \global\let\@filelist\relax
248 \global\let\@addtofilelist\@gobble
249 \fi
250 %% \gdef\do##1{\global\let ##1\@notprerr}%
251 %% \@preamblecmds
252 \global\let \@nodocument \relax
253 \global\let\do\noexpand
254 \ignorespaces}
255

```

For an imported document the `layouts` option is implemented in the `\document` command. The `article`, `report` and `letter` classes all start of with the `plain` page style, which is specified within the class file. When mixed classes of imported documents are used the page style definitions can get overwritten by the extra class(es). So, the revised `\document` command resets the `plain` page style to the combine class definition and sets the initial page style to be `plain`.

```

256 \newcommand{\c@lbdocument}{%
257 %% \endgroup
258 %% \ifx\@unusedoptionlist\@empty\else
259 %% \@latex@warning@no@line{Unused global option(s):^^J%
260 %% \@spaces[\@unusedoptionlist]}%
261 %% \fi
262 \ifc@layouts %% layouts option
263 \c@ltextblock
264 \fi
265 \begin@floatplacement\@dblfloatplacement
266 \makeatletter \let\@writefile\@gobbletwo
267 %% \global \let \@multiplelabels \relax
268 \@input{\c@l@auxfile}%
269 \endgroup
270 \if@filesw
271 \immediate\openout\@partaux\c@l@auxfile
272 \immediate\write\@partaux{\relax}%
273 \fi
274 \process@table
275 \let\glb@currsize\@empty
276 \normalsize
277 \everypar{}%
278 \@noskipsecfalse
279 %% \let \@refundefined \relax
280 \let\AtBeginDocument\@firstofone
281 \@begindocumenthook
282 \ifdim\topskip<1sp\global\topskip 1sp\relax\fi
283 \global\@maxdepth\maxdepth
284 %% \global\let\@begindocumenthook\@undefined
285 \ifx\@listfiles\@undefined

```

```

286 \global\let\@filelist\relax
287 \global\let\@addtofilelist\@gobble
288 \fi
289 %% \gdef\do##1{\global\let ##1\@notprerr}%
290 %% \@preamblecmds
291 \global\let \@nodocument \relax
292 \global\let\do\noexpand
293 \let\ps@plain\c@l@ps@plain %% set pagestyle

```

Setting `\pagestyle` here kills the use of any other style (e.g., a fancy style) in the imports<sup>6</sup>.

```

294 %% \pagestyle{plain}
295 \ifc@folios %% folios option initialises page number
296 \setcounter{page}{1}
297 \fi
298 \ifc@haschapter %% set chapter/section number
299 \setcounter{c@lctr}{\value{chapter}}
300 \setcounter{chapter}{0}
301 \else
302 \setcounter{c@lctr}{\value{section}}
303 \setcounter{section}{0}
304 \fi
305 \c@lresetcounters %% added
306 \makeatother %% added
307 \ignorespaces}
308

```

`\c@lresetcounters` This sets various counters to zero, and is called at the beginning of an imported document.

```

309 \newcommand{\c@lresetcounters}{%
310 \ifundefined{c@figure}{\setcounter{figure}{0}}
311 \ifundefined{c@table}{\setcounter{table}{0}}
312 \ifundefined{c@equation}{\setcounter{equation}{0}}
313 \ifundefined{c@footnote}{\setcounter{footnote}{0}}
314 \ifundefined{c@chapter}%
315 {\ifundefined{c@section}{\renewcommand{\thesection}{\c@lthesec}}}%
316 {\renewcommand{\thechapter}{\c@lthechap}}
317 \zeroextracounters
318 }

```

`\zeroextracounters` This is a user-level macro that can be renewed to reset additional counters to zero at the beginning of an imported document.

```

319 \newcommand{\zeroextracounters}{}
320

```

The `\enddocument` command (defined in `ltmiscen.dtx`) has to be modified for both the main and imported documents. The modifications are minor, mainly concerned with handling the proper files.

<sup>6</sup>Problem discovered by Rumen Bogdanovski (`rgb@libra.astro.bas.bg`) on 2001/04/03.



`\c@lenddoca` `\c@lenddoca` holds some code that is common to both `\c@laenddocument` and `\c@lbenddocument`.

```

321 \newcommand{\c@lenddoca}{%
322   \dofilelist
323   \ifdim \font@submax >\fontsubfuzz\relax
324     \font@warning{Size substitutions with differences\MessageBreak
325                 up to \font@submax\space have occurred.\@gobbletwo}%
326   \fi
327   \@defaultsubs
328 %%   \@refundefined
329   \if@filesw
330     \ifx \@multiplelabels \relax
331       \if@tempwa
332         \@latex@warning@no@line{Label(s) may have changed.
333                               Rerun to get cross-references right}%
334       \fi
335     \else
336       \@multiplelabels
337     \fi
338   \fi
339 }
340

```

`\c@laenddocument`

`\c@lbenddocument`

```

341 \newcommand{\c@laenddocument}{%
342   \@enddocumenthook
343   \@checkend{document}%
344   \clearpage
345   \begingroup
346   \if@filesw
347     \immediate\closeout\@mainaux
348     \immediate\closeout\@partaux
349     \let\@setckpt\@gobbletwo
350     \let\@newl@bel\@testdef
351     \@tempswafalse
352     \makeatletter \input\c@lmainauxfile %% change here
353   \fi
354   \c@lenddoca %% a replacement
355   \@refundefined
356 \endgroup
357 \deadcycles\z@\@end}
358
359 \newcommand{\c@lbenddocument}{%
360   \@enddocumenthook
361   \@checkend{document}%
362   \clearpage
363   \begingroup
364   \if@filesw
365     \immediate\closeout\@partaux %% change here

```

```

366     \let\@setckpt\@gobbletwo
367     \let\@newl@bel\@testdef
368     \@tempwafalse
369     \makeatletter \input\c@lauxfile %% change here
370     \fi
371     \c@lenddoca                %% a replacement
372 %%    \@refundefined
373 \endgroup
374 \deadcycles\z@ %%\@@end      %% \@@end will close *all* files
375 \c@lclosestocs                %% close local files

Reset sectional and page numbering. Also reset stuff to take account of the possibility that \appendix was called.

376 \ifc@lhaschapter              %% reset chap/sec and page numbering
377 \setcounter{chapter}{\value{c@lctr}}
378 \gdef\thechapter{\c@lthechap}
379 \gdef\@chapapp{\chaptername}
380 \else
381 \setcounter{section}{\value{c@lctr}}
382 \gdef\thesecion{\c@lthesec}
383 \fi
384 \setcounter{page}{\value{colpage}}
385 \pagestyle{\c@lastyle}
386 \erasetitling                 %% no \coltoc... or \published commands defined
387 %% \let\@auxout\@mainaux
388 \gdef\jobname{\mainjobname}  %% swap back to main document file name
389 \endinput                     %% ignore any text after \end{document}
390 }
391

```

## 9.2 Titling commands

Changes to \maketitle and friends are defined here.

\maintitlefont	To provide some flexibility in the titling style of the main document, user level
\postmaintitle	commands are provided that can be changed to reconfigure the appearance resulting
\mainauthorfont	from \maketitle. These are defined initially to approximately mimic the
\postmainauthor	normal L <sup>A</sup> T <sub>E</sub> X style.
\maindatefont	392 \newcommand{\maintitlefont}{\begin{center}\LARGE}
\postmaindate	393 \newcommand{\postmaintitle}{\par\end{center}\vskip 0.5em}
	394 \newcommand{\mainauthorfont}{\begin{center}
	395 \large \lineskip .5em%
	396 \begin{tabular}[t]{c}}
	397 \newcommand{\postmainauthor}{\end{tabular}\par\end{center}}
	398 \newcommand{\maindatefont}{\begin{center}\large}
	399 \newcommand{\postmaindate}{\par\end{center}}
	400

\c@lamaketitle The \maketitle command (defined by each class) must not incapacitate several commands that it normally does (e.g., \thanks, \maketitle, \title, \author,

\date, and \and). The following is a modification of \maketitle as in the article, report, and book classes.

```

401 \if@titlepage
402   \newcommand{\c@lamaketitle}{\begin{titlepage}%
403     \let\footnotesize\small
404     \let\footnoterule\relax
405     \let \footnote \thanks
406     \null\vfil
407     \vskip 60\p@
408     {\maintitlefont \@title \postmaintitle}
409     {\mainauthorfont \@author \postmainauthor}
410     {\maindatefont \@date \postmaindate}
411     \par
412     \@thanks
413     \vfil\null
414   \end{titlepage}%
415   \setcounter{footnote}{0}%
416   \c@lmtitleempty           %% change here
417 } % end titlepage defs
418 \else
419   \newcommand{\c@lamaketitle}{\par
420     \begingroup
421     \c@lmtitle           %% change here
422     \endgroup
423     \setcounter{footnote}{0}%
424     \c@lmtitleempty     %% change here
425   } % end non-titlepage
426

```

I use \def\@maketitle to account for the cases where the main class does not have titling commands, and to ensure an existing \@maketitle gets overridden.

```

427
428 \def\@maketitle{%
429   \newpage
430   \null
431   \vskip 2em%
432   {\maintitlefont \@title \postmaintitle}
433   {\mainauthorfont \@author \postmainauthor}
434   {\maindatefont \@date \postmaindate}
435   \par
436   \vskip 1.5em}
437 \fi % end mod A of titling
438

```

\c@lmtitle This macro contains much of the code that is common between \c@l@maketitle and \c@l@bmaketitle.

```

439 \newcommand{\c@lmtitle}{%
440   \renewcommand\thefootnote{\@fnsymbol\c@footnote}%
441   \def\@makefnmark{\rlap{\@textsuperscript{\normalfont\@thefnmark}}}%
442   \long\def\@makefntext##1{\parindent 1em\noindent

```

```

443 \hb@xt@1.8em{%
444   \hss\@textsuperscript{\normalfont\@thefnmark}}##1}%
445 \if@twocolumn
446   \ifnum \col@number=\@ne
447     \@maketitle
448   \else
449     \twocolumn[\@maketitle]%
450   \fi
451 \else
452   \newpage
453   \global\@topnum\z@
454   \@maketitle
455 \fi
456 \thispagestyle{plain}\@thanks
457 }
458

```

The modification for imported documents is simpler as there seems no point in allowing for a titlepage option. Also, don't start a new page for the title and use a local typesetting style.

```

459 \newcommand{\c@lmbmaketitle}{\par
460   \begingroup
461     \let\newpage\relax
462     \let\@maketitle\c@lmbmaketitle
463     \c@lmtitle
464   \endgroup
465   \setcounter{footnote}{0}%
466   \c@lmtitleempty
467 }
468

```

`\c@lmtitleempty` A helper macro to save some macro space. It empties elements of `\maketitle`.

```

469 \newcommand{\c@lmtitleempty}{%
470   \global\let\@thanks\@empty
471   \global\let\@author\@empty
472   \global\let\@date\@empty
473   \global\let\@title\@empty
474 }

```

`\importtitlefont` The fonts and layouts for use within `\maketitle` in imported documents.

```

\postimporttitle 475 \newcommand{\importtitlefont}{\begin{center}\LARGE\bfseries}
\importauthorfont 476 \newcommand{\postimporttitle}{\par\end{center}}
\postimportauthor 477 \newcommand{\importauthorfont}{\begin{center}
  \importdatefont 478   \large\itshape \lineskip .5em%
  \postimportdate 479   \begin{tabular}[t]{c}
480 \newcommand{\postimportauthor}{\end{tabular}\par\end{center}}
481 \newcommand{\importdatefont}{\begin{center}\large}
482 \newcommand{\postimportdate}{\par\end{center}}
483

```

`\c@lb@maketitle` This typesets the title in an imported document. It also includes the code for implementing the `nodate`, `notitle` and `noauthor` options. The vertical spacing is reduced slightly from normal. The title and author texts are set with `\importtitlefont` and `\importauthorfont` respectively. The date is set with `\importdatefont`.

```

484 \newcommand{\c@lb@maketitle}{%
485 %% \newpage
486 \begingroup
487 \let\footnote\thanks
488 \null
489 \vskip 2em%
490 \ifc@lnotitle\else
491   {\importtitlefont \@title \postimporttitle}
492 \fi
493 \ifc@lnoauthor\else
494   {\importauthorfont \@author \postimportauthor}
495 \fi
496 \ifc@lnodate\else
497   {\importdatefont \@date \postimportdate}%
498 \fi
499 \par
500 \endgroup
501 }
502

```

### 9.3 Cross referencing

This section deals with `\tableofcontents` and friends, together with labeling, referencing and citations.

`\c@lb@starttoc` The `\@starttoc` command (from `ltsect.dtx`) has to be modified for imported documents so that a local ToC (LoF, LoT) file is used instead of the one for the main document. I use a file identifier of `c@l#1fnum` instead of the normal `tf@#1`.

```

503 \newcommand{\c@lb@starttoc}[1]{%
504 \begingroup
505 \makeatletter
506 \def\tocfname{\jobname.#1}
507 \input{\tocfname}%
508 \if@filesw

```

The following tests are to check if we can use a predefined output stream or have to allocate a new one (e.g., if a new list of floats has been defined).

```

509   \def\c@ltempa{#1} \def\c@ltempb{toc}
510   \ifx \c@ltempa \c@ltempb
511     \immediate\openout\c@ltoctfnum \tocfname\relax
512   \else
513     \def\c@ltempb{lof}
514     \ifx \c@ltempa \c@ltempb
515       \immediate\openout\c@lloffnum \tocfname\relax

```

```

516     \else
517     \def\c@ltempb{lot}
518     \ifx \c@tempa \c@ltempb
519     \immediate\openout\c@lloffnum \tocfname\relax
520     \else
521     \expandafter\newwrite\csname c@l#1fnum\endcsname
522     \immediate\openout\csname c@l#1fnum\endcsname \tocfname\relax
523     \fi
524     \fi
525     \fi
526     \fi
527     \@nobreakfalse
528 \endgroup}
529

```

`\c@lbwritefile` To go along with local ToC files, `\@writefile` (in `ltmiscen.dtx`) has to be modified to match. We also check if a local file exists before writing to it.

```

530 \newcommand{\c@lb@writefile}[2]{%
531   \def\tocfname{\jobname.#1}
532   \IfFileExists{\tocfname}
533   {\@temptokena{#2}}%
534   \immediate\write\csname c@l#1fnum\endcsname{\the\@temptokena}}
535   {}
536 }
537

```

`\c@lcloseotocs` At the end of each imported document, any local ToC, etc., files must be closed.

```

538 \newcommand{\c@lcloseotocs}{%
539   \immediate\closeout\c@ltoctfnum
540   \immediate\closeout\c@lloffnum
541   \immediate\closeout\c@lloffnum
542 }
543

```

`\c@ltoctogobble` A macro containing some common code for `\dots addtocontents` commands.

```

544 \newcommand{\c@ltoctogobble}{%
545   \let\label\@gobble \let\index\@gobble \let\glossary\@gobble}
546

```

`\c@laaddtocontents` It turns out to be useful to have versions of ToC addition commands that go towards the main document.

```

547 \newcommand{\c@laaddtocontents}[2]{%
548   \protected@write\@mainaux
549   {\c@ltoctogobble}%
550   {\string\@writefile{#1}{#2}}
551 }
552 \newcommand{\c@laaddcontentsline}[3]{%
553   \c@laaddtocontents{#1}{\protect\contentsline{#2}{#3}{\thecolpage}}
554 }
555

```

`\c@lbaddtocontents` To implement the `maintoc` option, we need a modification of `\addtocontents` (in `ltsect.dtx`) so that it will write to both the local and the main `.aux` files.

```

556 \ifc@lmaintoc
557   \newcommand{\c@lbaddtocontents}[2]{%
558     \protected@write\@auxout
559       {\c@lctocgobble}%
560       {\string\@writefile{#1}{#2}}
561     \ifx\@mainaux\@auxout\else %% prevent writing twice to mainaux
562       \protected@write\@mainaux
563         {\c@lctocgobble}%
564         {\string\@writefile{#1}{\protect\begin{tocindent}{\toctocindent}}}
565       \protected@write\@mainaux
566         {\c@lctocgobble}%
567         {\string\@writefile{#1}{#2}}
568       \protected@write\@mainaux
569         {\c@lctocgobble}%
570         {\string\@writefile{#1}{\protect\end{tocindent}}}
571     \fi
572   }
573 \fi
574

```

`\c@lblabel` To get the ‘correct’ page number for labels in an imported document, we have to  
`\c@lb@setref` use the global and not the local page number.

```

575 \newcommand{\c@lblabel}[1]{\@bsphack
576   \protected@write\@auxout{%
577     {\string\newlabel{#1}{\@currentlabel}{\thecolpage}}}%
578   \@esphack}
579 \newcommand{\c@lb@setref}[3]{%
580   \ifx#1\relax
581     \protect\G@refundefinedtrue
582     \nfss@text{\reset@font\bfseries ??}%
583     \@latex@warning{Reference ‘#3’ on page \thecolpage \space
584       undefined}%
585   \else
586     \expandafter#2#1\null
587   \fi}
588

```

`\c@lbnewlabel` For local labels and cross-references in an imported document, special versions of  
`\c@lbref` `\newlabel`, `\ref` and `\pageref` (in `ltxref.dtx`) are needed. I use `\jobname` to  
`\c@lbpagebref` distinguish identical labels in different imported files.

```

589 \newcommand{\c@lbnewlabel}{\@newl@bel{R?\jobname?}}
590 \newcommand{\c@lbref}[1]{\expandafter\@setref\csname R?\jobname?@#1\endcsname
591   \@firstoftwo{#1}}
592 \newcommand{\c@lbpageref}[1]{\expandafter\@setref\csname R?\jobname?@#1\endcsname
593   \@secondoftwo{#1}}
594

```

`\c@lwritemainbib` For citations we may be writing to either the main bibliography or to a local bibliography. For local bibliographies I use the `\jobname` as a distinguishing characteristic.

```

595 \newcommand{\c@lwritemainbib}{%
596   \if@filesw\immediate\write\@mainaux{\string\citation{\@citeb}}\fi
597   \@ifundefined{b@\@citeb}{\mbox{\reset@font\bfseries ?}}%
598   \G@refundefinedtrue
599   \latex@warning
600     {Citation ‘\@citeb’ on page \thecolpage \space undefined}}%
601   {\hbox{\csname b@\@citeb\endcsname}}}
602 \newcommand{\c@lwritelocalbib}{%
603   \if@filesw\immediate\write\@auxout{\string\citation{\@citeb}}\fi
604   \@ifundefined{B?\jobname?\@citeb}{\mbox{\reset@font\bfseries ?}}%
605   \G@refundefinedtrue
606   \latex@warning
607     {Citation ‘\@citeb’ on page \thecolpage \space undefined}}%
608   {\hbox{\csname B?\jobname?\@citeb\endcsname}}}
609

```

`\c@lanocite` Slight mod to the kernel `\nocite` macro.

```

610 \newcommand{\c@lanocite}[1]{\@bsphack
611   \@for\@citeb:=#1\do{%
612     \edef\@citeb{\expandafter\@firstofone\@citeb}%
613     \if@filesw\immediate\write\@mainaux{\string\citation{\@citeb}}\fi
614     \@ifundefined{b@\@citeb}{\G@refundefinedtrue
615       \latex@warning{Citation ‘\@citeb’ undefined}}{}}%
616   \@esphack}
617 \let\nocite\c@lanocite
618

```

`\c@lbnocite` Need another version of `\nocite` for imports.

```

619 \newcommand{\c@lbnocite}[1]{\@bsphack
620   \@for\@citeb:=#1\do{%
621     \edef\@citeb{\expandafter\@firstofone\@citeb}%
622     \if@filesw\immediate\write\@auxout{\string\citation{\@citeb}}\fi
623     \@ifundefined{B?\jobname?\@citeb}{\G@refundefinedtrue
624       \latex@warning{Citation ‘\@citeb’ undefined}}{}}%
625   \@esphack}
626

```

`\c@lb@citex` For local citations in an imported document, special versions of `\@citex` and `\c@lbbibcite` (in `ltbibl.dtx`) are needed. I use the `\jobname` as a means of distinguishing between identical citation labels in different imported files.

```

627 \def\c@lb@citex[#1]#2{%
628   \ifc@lcombib
629     \c@lanocite{#2}%
630   \fi
631   \let\@citea\@empty
632   \@cite{\for\@citeb:=#2\do

```



```

633     {\@citea\def\@citea{,\penalty\@m\ }%
634     \edef\@citeb{\expandafter\@firstofone\@citeb\@empty}%
635     \ifc@lcombib
636       \c@lwritelocalbib
637     \else
638       \ifc@lonebib
639         \c@lwritemainbib
640       \else
641         \c@lwritelocalbib
642       \fi
643     \fi}}{\#1}}
644
645 \ifc@lonebib
646   \newcommand{\c@lbbibcite}{\@newl@bel b}
647   \ifc@lcombib
648     \renewcommand{\c@lbbibcite}{\@newl@bel{B?\jobname?}}
649   \fi
650 \else
651   \newcommand{\c@lbbibcite}{\@newl@bel{B?\jobname?}}
652 \fi
653

```

## 9.4 Page styles and numbering

`\c@lapagestyle` I want to be able to restore the main document pagestyle after an import. The  
`\c@lastyle` current main pagestyle is kept in `\c@lastyle` which is defined by `\c@lapagestyle`  
`\c@lpagestyle` (original in `ltpage.dtx`).

```

654 \newcommand{\c@lapagestyle}[1]{%
655   \gdef\c@lastyle{#1}
656   \@ifundefined{ps@#1}{}{\@nameuse{ps@#1}}
657 }

```

`\c@lpagestyle` is the same as the kernel `\pagestyle`, except for some reason  $\LaTeX$  complains that the original command `\undefinedpagestyle` is undefined!

```

658 \newcommand{\c@lpagestyle}[1]{%
659   \@ifundefined{ps@#1}{}{\@nameuse{ps@#1}}
660 }
661

```

`\c@lbpagenumbering` Need to do something about changing the page numbering in imported documents,  
as it can have an unfortunate impact on later numbering. The original command  
is in `ltpageno.dtx`. Disable changing the style of the page number unless the  
`folios` option is in effect.

```

662 \ifc@lfolios
663   \newcommand{\c@lbpagenumbering}[1]{%
664     \global\c@page \@ne \gdef\thepage{\csname @#1\endcsname
665       \c@page}}
666 \else
667   \newcommand{\c@lbpagenumbering}[1]{%

```

```

668 \fi
669
\c@laps@plain Alternative definitions for the plain pagestyle.
\c@lbps@plain 670 \if@twoside
671   \newcommand{\c@laps@plain}{%
672     \let\@mkboth\@gobbletwo
673     \let\@oddhead\@empty \let\@evenhead\@empty
674     \def\@oddfoot{\reset@font\hfil\thepage}%
675     \def\@evenfoot{\reset@font\thepage\hfil}%
676   }
677   \ifc@lfolios
678     \newcommand{\c@lbps@plain}{%
679       \let\@mkboth\@gobbletwo
680       \let\@oddhead\@empty \let\@evenhead\@empty
681       \def\@oddfoot{\reset@font(\thepage)\hfil\thecolpage}%
682       \def\@evenfoot{\reset@font\thecolpage\hfil(\thepage)}}%
683     }
684   \else
685     \newcommand{\c@lbps@plain}{%
686       \let\@mkboth\@gobbletwo
687       \let\@oddhead\@empty \let\@evenhead\@empty
688       \def\@oddfoot{\reset@font\hfil\thecolpage}%
689       \def\@evenfoot{\reset@font\thecolpage\hfil}%
690     }
691   \fi
692 \else
693   \newcommand{\c@laps@plain}{%
694     \let\@mkboth\@gobbletwo
695     \let\@oddhead\@empty \let\@evenhead\@empty
696     \def\@oddfoot{\reset@font\hfil\thepage}%
697     \let\@evenfoot\@oddfoot
698   }
699   \ifc@lfolios
700     \newcommand{\c@lbps@plain}{%
701       \let\@mkboth\@gobbletwo
702       \let\@oddhead\@empty \let\@evenhead\@empty
703       \def\@oddfoot{\reset@font(\thepage)\hfil\thecolpage}%
704       \let\@evenfoot\@oddfoot
705     }
706   \else
707     \newcommand{\c@lbps@plain}{%
708       \let\@mkboth\@gobbletwo
709       \let\@oddhead\@empty \let\@evenhead\@empty
710       \def\@oddfoot{\reset@font\hfil\thecolpage}%
711       \let\@evenfoot\@oddfoot
712     }
713   \fi
714 \fi
715

```

## 10 New class commands

That completes the preliminaries. We can now move on and define the new commands and environment implemented by the `combine` class.

`\ps@combine` A new pagestyle. Like `plain` but the page numbers are put at a bottom corner instead of being centered. It also changes the the `plain` style to match.

```

716 \if@twoside
717   \newcommand{\ps@combine}{%
718     \let\mkboth@gobbletwo
719     \let\@oddhead@empty \let\@evenhead@empty
720     \def\@oddfoot{\reset@font\hfil\thepage}%
721     \def\@evenfoot{\reset@font\thepage\hfil}%
722     \let\ps@plain\c@laps@plain
723   }
724 \else
725   \newcommand{\ps@combine}{%
726     \let\mkboth@gobbletwo
727     \let\@oddhead@empty \let\@evenhead@empty
728     \def\@oddfoot{\reset@font\hfil\thepage}%
729     \let\@evenfoot\@oddfoot
730     \let\ps@plain\c@laps@plain
731   }
732 \fi
733
```

`\import` `\import{<texfile>}` attempts to find and input the file `<texfile>.tex`. It is very loosely based on `\include`. It also adds the `\coltoctitle`, etc., to the ToC in a useful order<sup>7</sup>.

```

734 \newcommand{\import}[1]{%
735   \ifc@ltoctitle
736     \addtocontents{toc}{\protect\contentsline{coltoctitle}%
737       {\protect\numberline{}}\savec@ltoctitle}{\thecolpage}}
738   \c@ltoctitlefalse
739   \fi
740   \ifc@ltoctocauthor
741     \addcontentsline{toc}{coltocauthor}{\protect\numberline{}}\savec@ltoctocauthor}
742     \c@ltoctocauthorfalse
743     \fi
744     \ifc@lpub
745       \addcontentsline{toc}{published}{\protect\numberline{}}\savec@lpublished}
746       \c@lpubfalse
747       \fi
748       \gdef\jobname{#1}
749       \expandafter\let\csname B?\jobname?*\endcsname@empty
750       \gdef\c@lauxfile{#1.aux}
751       \@tempwattrue

```

<sup>7</sup>This need pointed out by Stefan Becuwe (Stefan.Becuwe@ua.ac.be) by Email on 2001/07/09.

```

752 \let\@auxout\@partaux
753 \@input@{#1.tex}%
754 %% \writeckpt{#1}%
755 \let\@auxout\@mainaux
756 }
757
\bodytitlemark \bodytitle[short]{long} is for putting a sectional title into the main docu-
\bodytitle ment for the following imported document. It is like a \section (or \chapter)
command and has its own numbering scheme.
758 \newcommand*\bodytitlemark[1]{%
759 \newcounter{bodytitle}
760 \renewcommand{\thebodytitle}{\@arabic\c@bodytitle}
761 \ifc@lhaschapter
762 \newcommand{\bodytitle}{\@startsection{bodytitle}{0}{\z@}%
763 {-3.5ex \@plus -1ex \@minus -.2ex}%
764 {2.3ex \@plus.2ex}%
765 {\normalfont\Huge\bfseries}}
766 \else
767 \newcommand{\bodytitle}{\@startsection{bodytitle}{1}{\z@}%
768 {-3.5ex \@plus -1ex \@minus -.2ex}%
769 {2.3ex \@plus.2ex}%
770 {\normalfont\Large\bfseries}}
771 \fi
772
\c@l@chapseci These are two helper macros that contain common code used for some of the ToC
\c@l@chapsecii typesetting commands that will be defined. Essentially they hold the first and
second quarter of the code for ToC typesetting of chapters and sections.
773 \newcommand{\c@l@chapseci}{%
774 % \setlength\@tempdima{1.5em}%
775 \setlength\@tempdima{0em}%
776 \begingroup
777 \parindent \z@ \rightskip \@pnumwidth
778 \parfillskip -\@pnumwidth
779 \leavevmode
780 }
781 \newcommand{\c@l@chapsecii}[2]{%
782 \advance\leftskip\@tempdima
783 \hskip -\leftskip
784 #1\nobreak\hfil \nobreak\hb@xt@\@pnumwidth{\hss #2}\par
785 }
786
\l@bodytitle \l@bodytitle typesets the ToC entry for \bodytitle.
787 \ifc@lhaschapter
788 \newcommand*\l@bodytitle[2]{% % as per chapter
789 \ifnum \c@tocdepth >\m@ne
790 \addpenalty{-\@highpenalty}%

```

```

791     \addvspace{1.0em \@plus\p@}%
792     \c@ll@chapseci
793     \bfseries                %% bold ToC entry
794     \c@ll@chapsecii{#1}{#2}
795     \penalty\@highpenalty
796     \endgroup
797 \fi}
798 \else
799 \newcommand*\l@bodytitle[2]{% % as per section
800 \ifnum \c@tocdepth >\z@
801 \addpenalty\@secpenalty
802 \addvspace{1.0em \@plus\p@}%
803 \c@ll@chapseci
804 \bfseries                %% bold ToC entry
805 \c@ll@chapsecii{#1}{#2}
806 \endgroup
807 \fi}
808 \fi
809
\toctitleindent These lengths control the indentations of the imported title, author, published,
\tocauthorindent and sectional headings in the main ToC.
\tocpubindent 810 \newlength{\toctitleindent}\setlength{\toctitleindent}{0pt}
\tococindent 811 \newlength{\tocauthorindent}\setlength{\tocauthorindent}{1.5em}
812 \newlength{\tocpubindent}\setlength{\tocpubindent}{1.5em}
813 \newlength{\tococindent}\setlength{\tococindent}{1.5em}
814
tocindent The tocindent environment is used to set the various main ToC indents.
815 \newenvironment{tocindent}[1]{%
816 \hangindent #1 \hangafter -100\relax}{%
817
\toctitlefont These macros define the fonts to be used for typesetting the title, author and
\tocauthorfont publication entries in the main ToC.
\tocpubfont 818 \newcommand{\toctitlefont}{\bfseries}
819 \newcommand{\tocauthorfont}{\itshape}
820 \newcommand{\tocpubfont}{\normalfont}
821
\coltoctitle \coltoctitle{<title>} adds <title> to the ToC for the following imported docu-
\l@coltoctitle ment. The ToC entry is typeset by \l@coltoctitle.
822 \newcommand*\coltoctitle[1]{%
823 \c@ltoctitletrue%
824 \gdef\savec@ltoctitle{#1}
825 }
826

```

We want to arrange it so that if the title is near the bottom of a page in the ToC, have the pagebreak before rather than after the title.

```

827 \ifc@lhaschapter
828   \newcommand*\l@coltoctitle[2]{% % as per chapter
829     \ifnum \c@tocdepth >\m@ne
830       \addpenalty{-\@highpenalty}% encourage page break
831       \addvspace{1.0em \@plus\p@}%
832       \c@ll@chapseci
833       \setlength{\@tempdima}{\toctitleindent}% eliminate any spaces here
834       \toctitlefont                %% bold ToC entry
835       \c@ll@chapsecii{#1}{#2}
836       \penalty\@highpenalty        % discourage page break
837       \endgroup
838     \fi}
839 \else
840   \newcommand*\l@coltoctitle[2]{% % as per section
841     \ifnum \c@tocdepth >\z@
842       \addpenalty\@secpenalty
843       \addvspace{1.0em \@plus\p@}%
844       \c@ll@chapseci
845       \setlength{\@tempdima}{\toctitleindent}% eliminate any spaces here
846       \toctitlefont                %% bold ToC entry
847       \c@ll@chapsecii{#1}{#2}
848       \penalty\@highpenalty        % discourage page break
849       \endgroup
850     \fi}
851 \fi
852

```

`\coltocauthor` `\coltocauthor{authors}` adds *authors* to the ToC for the following imported document. The ToC entry is typeset by `\l@coltocauthor`. Note that a page number is not printed.

```

853 \newcommand*\coltocauthor[1]{%
854   \c@ltoauthortrue%
855   \gdef\savec@ltoauthor{#1}
856 }
857

```

As it is unlikely that the author will be in the ToC without the title, don't encourage a page break beforehand.

```

858 \ifc@lhaschapter
859   \newcommand*\l@coltocauthor[2]{% % similar to chapter
860     \ifnum \c@tocdepth >\m@ne
861       \c@ll@chapseci
862       \setlength{\@tempdima}{\tocauthorindent}% eliminate any spaces here
863       \tocauthorfont                %% italic ToC entry
864       \c@ll@chapsecii{#1}{}
865       \penalty\@highpenalty        % discourage page break
866       \endgroup
867     \fi}
868 \else
869   \newcommand*\l@coltocauthor[2]{% % similar to section

```

```

870 \ifnum \c@tocdepth >\z@
871 \c@ll@chapseci
872 \setlength{\@tempdima}{\tocauthorindent}% eliminate any spaces here
873 \tocauthorfont %% italic ToC entry
874 \c@ll@chapsecii{#1}{ }
875 \penalty\@highpenalty % discourage page break
876 \endgroup
877 \fi}
878 \fi
879

```

`\published` `\published[short]{long}` adds *long* to the body of the document. It also adds *long* to the ToC, unless the optional argument is present, in which case `\l@published` `<short>` is added to the ToC.

In the body of the document *long* is typeset using `\pubfont`. The ToC entry is typeset by `\l@published`. Note that a page number is not printed.

```

880 \newcommand{\published}[2][\@empty]{%
881 \c@lpubtrue
882 \ifc@lnopubintoc\else
883 \ifx #1\@empty
884 \gdef\savvec@lpublished{#2}
885 \else
886 \gdef\savvec@lpublished{#1}
887 \fi
888 \fi
889 \ifc@lnopubindoc\else
890 {\parindent \z@ \pubfont #2\par\nobreak}
891 \fi
892 }
893 \newcommand{\pubfont}{\normalfont\centering}
894

```

As the published information is unlikely to be in the ToC without prior title or author information, don't encourage a prior break, but also don't try and prevent one afterwards either.

```

895 \ifc@lhaschapter
896 \newcommand*\l@published[2]{% % similar to chapter
897 \ifnum \c@tocdepth >\m@ne
898 \c@ll@chapseci
899 \setlength{\@tempdima}{\tocpubindent}% eliminate any spaces here
900 \tocpubfont %% normal font ToC entry
901 \c@ll@chapsecii{#1}{ }
902 \endgroup
903 \fi}
904 \else
905 \newcommand*\l@published[2]{% % similar to section
906 \ifnum \c@tocdepth >\z@
907 \c@ll@chapseci
908 \setlength{\@tempdima}{\tocpubindent}% eliminate any spaces here

```

```

909     \tocpubfont           %% normal font ToC entry
910     \c@ll@chapsecii{#1}{}
911     \endgroup
912     \fi}
913 \fi
914
\erasetitling This macro sets the \coltoctitle, \coltocauthor and \published flags to
FALSE.
915 \newcommand{\erasetitling}{\c@ltoctitlefalse\c@ltoauthorfalse\c@lpubfalse}
916

papers The papers environment has one optional argument, default \cleardoublepage
which gets executed at the start of the environment. Then the appropriate changes
to the kernel commands are executed.
917 \newenvironment{papers}[1][\cleardoublepage]{%
918 #1
919 \setuppapers
920 }{%
921 \takedownpapers
922 }
923

\setuppapers This macro executes the kernel modifications within the papers environment.
Various options are also checked and implemented if required. Sectional numbering
is reset to zero. Imported files can't \include other files, so \include is replaced
by \input. If \chapter is defined, then the chapter typesetting is redefined to
look more like a \section heading. .
924 \newcommand{\setuppapers}{%
925 \let\documentclass\c@lbdocumentclass
926 \ifc@lpackages\else \let\usepackage\c@lbusepackage \fi
927 \let\document\c@lbdocument
928 \let\enddocument\c@lbenddocument
929 \let\LoadClass\c@lbLoadClass
930 %% \let\maketitle\c@lbmaketitle
931 \def\maketitle{\c@lbmaketitle}
932 \let\@writefile\c@lb@writefile
933 \let\@starttoc\c@lb@starttoc
934 \ifc@lnomaketitle \let\maketitle\relax \fi
935 \ifc@lnotoc \let\tableofcontents\relax \fi
936 \ifc@lnolof \let\listoffigures\relax \fi
937 \ifc@lnolot \let\listoftables\relax \fi
938 \ifc@lmaintoc \let\addtocontents\c@lbaddtocontents \fi
939 \let\label\c@lblabel
940 \let\@setref\c@lb@setref
941 \let\newlabel\c@lbnewlabel
942 \let\ref\c@lbref
943 \let\pageref\c@lbpageref
944 %% \renewcommand{\bibliographystyle}[1]{}
```



```

945 \ifc@lcombib
946 \else
947   \ifc@lonebib
948     \renewcommand{\bibliography}[1]{
949       \fi
950     \fi
951 \let\@citex\c@lb@citex
952 \let\bibcite\c@lbbibcite
953 \let\nocite\c@lbnocite
954 \ifc@lhaschapter
955   \renewcommand{\chapter}{\@startsection{chapter}{0}{\z@}%
956                                     {-3.5ex \@plus -1ex \@minus -.2ex}%
957                                     {2.3ex \@plus .2ex}%
958                                     {\normalfont\Large\bfseries}}
959 \fi
960 \c@ltoctitlefalse
961 \c@ltoctauthorfalse
962 \c@lpubfalse
963 \let\pagenumbering\c@lbpagenumbering
964 \setcounter{colpage}{\value{page}}
965 \let\pagestyle\c@lbpagestyle
966 \pagestyle{\c@lastyle}
967 \let\include\input
968 }
969

```

`\takedownpapers` This macro executes the actions, if any, at the end of the `papers` environment.

```

970 \newcommand{\takedownpapers}{%
971 }
972

```

`\emptyAtBeginDocument` This macro empties tokens stored for use at `\begin{document}` time.

```

973 \newcommand{\emptyAtBeginDocument}{\let\@begindocumenthook\@empty}
974

```

Finally, use the appropriate revised kernel commands for the main document.

```

975 \let\document\c@ladocument
976 \let\enddocument\c@laenddocument
977 %%\let\maketitle\c@lamaketitle
978 \let\pagestyle\c@lapagestyle
979 \pagestyle{combine}
980

```

The end of this class.

```

981 </usc>

```

## 11 The `combinet` package code

```

982 < *pck >

```

The usual preliminaries. The `combine` class is expected.

```
983 \ifclassloaded{combine}{}{%
984   \PackageError{combinet}{The 'combine' class is expected}{\@ehc}%
985 }
986
```

`\ifc@lnomtitle` Booleans for implementing the options.

```
\ifc@lnomauthor 987 \newif\ifc@lnomtitle
\ifc@lnothanks 988   \c@lnomtitlefalse
\ifc@lpubopt 989 \newif\ifc@lnomauthor
\ifc@lpubtop 990   \c@lnomauthorfalse
\ifc@lpubs 991 \newif\ifc@lnothanks
992   \c@lnothanksfalse
993 \newif\ifc@lpubopt
994   \c@lpuboptfalse
995 \newif\ifc@lpubtop
996   \c@lpubtopfalse
997 \newif\ifc@lpubs
998   \c@lpubsfalse
999
```

Declare and execute the options.

```
1000 \DeclareOption{nomtitle}{\c@lnomtitletrue}
1001 \DeclareOption{nomauthor}{\c@lnomauthortrue}
1002 \DeclareOption{nothanks}{\c@lnothankstrue}
1003 \DeclareOption{pub}{\c@lpubopttrue\c@lpubtopfalse\c@lpubstrue}
1004 \DeclareOption{pubtop}{\c@lpubtoptrue\c@lpuboptfalse\c@lpubstrue}
1005 \ProcessOptions\relax
1006
```

`\published` In order to implement either of the `pub` options, the `\published` command must be modified to delay printing.

```
\c@lpubbody 1007 \ifc@lpubs
1008   \renewcommand{\published}[2][\@empty]{%
1009     \c@lpubtrue
1010     \ifx #1\@empty
1011       \gdef\c@lpubtoc{#2}
1012     \else
1013       \gdef\c@lpubtoc{#1}
1014     \fi
1015     \gdef\c@lpubbody{#2}
1016   }
1017 \fi
1018
```

`\title` To implement the `nothanks` option, the `\title` and `\author` kernel commands must be extended to save their values.

Originally I used `\xdef` below which worked unless there was some command other than `\thanks` in the title or author text. David Kastrup<sup>8</sup> and Donald Arse-

<sup>8</sup>At [dak@neuroinformatik.ruhr-uni-bochum.de](mailto:dak@neuroinformatik.ruhr-uni-bochum.de).

neau<sup>9</sup> both pointed out the use of `\protected@xdef`. Barbara Beeton<sup>10</sup> suggested adding the `\unskip` to the redefinition of `\and` in order to remove any preceding spaces when it gets printed in the ToC.

```

1019 \appendargdef{\title}{%
1020   \begingroup
1021   \renewcommand{\thanks}[1]{
1022     \protected@xdef\c@l@title{#1}
1023   \endgroup
1024 }
1025 \appendargdef{\author}{%
1026   \begingroup
1027   \renewcommand{\thanks}[1]{
1028     \renewcommand{\and}{\unskip, }
1029     \protected@xdef\c@l@author{#1}
1030   \endgroup
1031 }
1032

```

`\c@l@bmaketitle` The `\c@l@bmaketitle` command is (re)defined so that it adds the title and author (if given) to the main ToC. If `\coltoctitle` and/or `\coltocauthor` have been used then nothing is done with the title and/or author respectively.

```

1033 \def\c@l@bmaketitle{\par
1034   \begingroup
1035   \let\newpage\relax
1036   \let\@maketitle\c@l@b@maketitle
1037   \ifc@l@pub
1038     \ifc@l@pubtop
1039       \ifc@l@n@pub@indoc\else
1040         {\parindent\z@ \pubfont \c@l@pubbody\par\nobreak}
1041       \fi
1042     \fi
1043     \fi
1044     \c@l@title          %% typeset the title block
1045   \endgroup
1046   \setcounter{footnote}{0}
1047   \begingroup
1048   \let\thanks\@empty
1049   \ifc@l@toctitle\else
1050     \ifc@l@nomtitle\else
1051       \ifx\@title\@empty\else
1052         \ifc@l@nothanks

```

I originally used

```

\c@l@addtocontents{toc}%
{\protect\contentsline{coltoctitle}%
{\protect\numberline{\c@l@title}{\thecolpage}}

```

---

<sup>9</sup>At [asnd@triumf.ca](mailto:asnd@triumf.ca).

<sup>10</sup>[bnb@ams.org](mailto:bnb@ams.org)

below, but James Szinger<sup>11</sup> asked me to change to `\c@laaddcontentsline` instead (which I should have done, looking back I've no idea why I didn't) to help with using `hyperref`, which he said required redefining `\c@laaddcontentsline` to be compatible with `hyperref`'s (`hyperref` never seems to bother with trying to be compatible with other classes though).

```

1053         \c@laaddcontentsline{toc}%
1054             {coltoctitle}{\protect\numberline{}}\c@l@title}%
1055     \else
1056         \c@laaddcontentsline{toc}%
1057             {coltoctitle}{\protect\numberline{}}\@title}%
1058     \fi
1059 \fi
1060 \fi
1061 \fi
1062 \ifc@ltoauthor\else
1063     \ifc@lnomauthor\else
1064         \ifx\@author\@empty\else
1065             \ifc@lnothanks
1066                 \c@laaddcontentsline{toc}%
1067                     {coltoauthor}{\protect\numberline{}}\c@l@author}
1068             \else
1069                 \c@laaddcontentsline{toc}%
1070                     {coltoauthor}{\protect\numberline{}}\@author}
1071             \fi
1072         \fi
1073     \fi
1074 \fi
1075 \endgroup
1076 \ifc@lpub
1077     \ifc@lpubopt
1078         \ifc@lnopubindoc\else
1079             {\parindent\z@ \pubfont \c@lpubbody\par\nobreak}
1080         \fi
1081     \fi
1082 \ifc@lpubs
1083     \ifc@lnopubintoc\else
1084         \c@laaddcontentsline{toc}{published}{\protect\numberline{}}\c@lpubtoc}
1085     \fi
1086 \fi
1087 \fi
1088 \c@lmttitleempty
1089 }
1090

```

The end of this package

```
1091 </pck>
```

---

<sup>11</sup>Email, 2004/03/05, [szinger@lanl.gov](mailto:szinger@lanl.gov)

## 12 The `combnat` package code

This package calls the `natbib` package [Dal99] and then makes some minor changes to some of its macro definitions.

1092 `(*natpack)`

The usual preliminaries. The `natbib` package is required and all options are passed to it to deal with.

1093 `\ifclassloaded{combine}{\%`

1094 `\PackageError{combnat}{The 'combine' class is expected}{\ehc}}`

1095 `\RequirePackageWithOptions{natbib}`

For multiple bibliographies (`\c@lonebibfalse`) the change consists of replacing `natbib`'s naming of citation labels in the `.aux` files by the form used by the `combine` class. That is, the `b@` in each code fragment like `b@#...` or `b@\dots` is replaced by `B?\jobname?@...`

For a single main bibliography `\c@lonebibtrue`, implementation is much easier, merely ensuring that the stuff gets written to the main `*.aux` file.

`\c@lNATwritemainbib` We have to write different biblabels to different files. These write to the main  
`\c@lNATwritemainbibdate` `*.aux` file.

1096 `\newcommand{\c@lNATwritemainbib}{\%`

1097 `\if@files\immediate\write\@mainaux{\string\citation{\@citeb}}\fi`

1098 `\@ifundefined{b@\@citeb\@extra@b@citeb}{\%`

1099 `{\reset@font\bfseries?}`

1100 `\NAT@citeundefined\PackageWarning{natbib}{\%`

1101 `{Citation '\@citeb' on page \thepage \space undefined}}}`

1102

1103 `\newcommand{\c@lNATwritemainbibdate}{\%`

1104 `\if@files\immediate\write\@mainaux{\string\citation{\@citeb}}\fi`

1105 `\@ifundefined{b@\@citeb\@extra@b@citeb}{\@citea%`

1106 `{\reset@font\bfseries ?}\NAT@citeundefined`

1107 `\PackageWarning{natbib}{\%`

1108 `{Citation '\@citeb' on page \thepage \space undefined}`

1109 `\def\NAT@date{}}}`

1110

`\c@lNATwritelocalbib` We have to write different biblabels to different files. These write to the local  
`\c@lNATwritelocalbibdate` `*.aux` files.

1111 `\newcommand{\c@lNATwritelocalbib}{\%`

1112 `\if@files\immediate\write\@auxout{\string\citation{\@citeb}}\fi`

1113 `\@ifundefined{B?\jobname?\@citeb\@extra@b@citeb}{\%`

1114 `{\reset@font\bfseries?}`

1115 `\NAT@citeundefined\PackageWarning{natbib}{\%`

1116 `{Citation '\@citeb' on page \thepage \space undefined}}}`

1117

1118 `\newcommand{\c@lNATwritelocalbibdate}{\%`

1119 `\if@files\immediate\write\@auxout{\string\citation{\@citeb}}\fi`

1120 `\@ifundefined{B?\jobname?\@citeb\@extra@b@citeb}{\@citea%`

```

1121 {\reset@font\bfseries ?}\NAT@citeundefined
1122 \PackageWarning{natbib}%
1123   {Citation ‘\@citeb’ on page \thepage \space undefined}
1124 \def\NAT@date{}}
1125

```

`\c@lNAT@citexnum@swatruue` Holds some of the internals of the original `\NAT@citexnum`.

```

1126 \newcommand{\c@lNAT@citexnum@swatruue}{%
1127   \ifnum\NAT@ctype>1\relax\@citea
1128     \hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1129     \ifnum\NAT@ctype=2\relax\NAT@test{\NAT@ctype}%
1130     \else\NAT@alias
1131     \fi\hyper@natlinkend\else
1132   \ifnum\NAT@sort>1\relax
1133     \begingroup\catcode‘\_ =8
1134     \ifcat _\ifnum\z@<0\NAT@num _\else A\fi
1135     \global\let\NAT@nm=\NAT@num \else \gdef\NAT@nm{-2}\fi
1136     \ifcat _\ifnum\z@<0\NAT@last@num _\else A\fi
1137     \global\@tempcnta=\NAT@last@num \global\advance\@tempcnta by\@ne
1138     \else \global\@tempcnta@m@ne\fi
1139     \endgroup
1140     \ifnum\NAT@nm=\@tempcnta
1141       \ifx\NAT@last@yr\relax
1142         \edef\NAT@last@yr{\@citea \mbox{\noexpand\citenumfont\NAT@num}}%
1143       \else
1144         \edef\NAT@last@yr{--\penalty\@m\mbox{\noexpand\citenumfont\NAT@num}}%
1145       \fi
1146     \else
1147       \NAT@last@yr \@citea \mbox{\citenumfont\NAT@num}%
1148       \let\NAT@last@yr\relax
1149     \fi
1150   \else
1151     \@citea \mbox{\hyper@natlinkstart{\@citeb\@extra@b@citeb}}%
1152     {\citenumfont\NAT@num}\hyper@natlinkend}%
1153   \fi
1154 \fi
1155 \def\@citea{\NAT@sep\penalty\@m\NAT@space}%
1156 }
1157

```

`\NAT@citexnum` We redefine the original `\NAT@citexnum` to write for the main file.

```

1158 \def\NAT@citexnum[#1][#2]#3{%
1159   \NAT@sort@cites{#3}%
1160   \let\@citea\@empty
1161   \@cite{\def\NAT@num{-1}\let\NAT@last@yr\relax\let\NAT@nm\@empty
1162     \@for\@citeb:=\NAT@cite@list\do
1163       {\edef\@citeb{\expandafter\@firstofone\@citeb}}%
1164     \c@lNATwritemainbib %%% change here
1165     {\let\NAT@last@num\NAT@num\let\NAT@last@nm\NAT@nm
1166       \NAT@parse{\@citeb}}%

```

```

1167     \ifNAT@longnames\ifundefined{bv@\@citeb\@extra@b@citeb}{%
1168         \let\NAT@name=\NAT@all@names
1169         \global\@namedef{bv@\@citeb\@extra@b@citeb}{}}}%
1170     \fi
1171     \ifNAT@full\let\NAT@nm\NAT@all@names\else
1172         \let\NAT@nm\NAT@name
1173     \fi
1174     \ifNAT@swa
1175         \c@lNAT@citexnum@swatru
1176     \else
1177         \ifcase\NAT@ctype\relax
1178             \ifx\NAT@last@nm\NAT@nm \NAT@yrsep\penalty\@m\NAT@space\else
1179                 \citea \NAT@test{1}\ \NAT@@open
1180                 \if*#1*\else#1\ \fi\fi \NAT@mbox{%
1181                 \hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1182                 {\citenumfont\NAT@num}\hyper@natlinkend}%
1183                 \def\@citea{\NAT@@close\NAT@sep\penalty\@m\ }%
1184             \or\@citea
1185                 \hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1186                 \NAT@test{\NAT@ctype}\hyper@natlinkend
1187                 \def\@citea{\NAT@sep\penalty\@m\ }%
1188             \or\@citea
1189                 \hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1190                 \NAT@test{\NAT@ctype}\hyper@natlinkend
1191                 \def\@citea{\NAT@sep\penalty\@m\ }%
1192             \or\@citea
1193                 \hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1194                 \NAT@alias\hyper@natlinkend
1195                 \def\@citea{\NAT@sep\penalty\@m\ }%
1196             \fi
1197         \fi
1198     }%
1199     \ifnum\NAT@sort>1\relax\NAT@last@yr\fi
1200     \ifNAT@swa\else\ifnum\NAT@ctype=0\if*#2*\else
1201         \NAT@cmt#2\fi \NAT@@close\fi\fi}{#1}{#2}}
1202

```

\c@lNAT@citexnum A local version of \NAT@citexnum.

```

1203 \def\c@lNAT@citexnum[#1][#2]#3{%
1204     \ifc@lcombib\c@lNATnocite{#3}\fi    %% change here
1205     \NAT@sort@cites{#3}%
1206     \let\@citea\@empty
1207     \@cite{\def\NAT@num{-1}\let\NAT@last@yr\relax\let\NAT@nm\@empty
1208         \@for\@citeb:=\NAT@cite@list\do
1209         {\edef\@citeb{\expandafter\@firstofone\@citeb}%
1210             \c@lNATwritelocalbib          %% change here
1211             {\let\NAT@last@num\NAT@num\let\NAT@last@nm\NAT@nm
1212                 \NAT@parse{\@citeb}%
1213                 \ifNAT@longnames\ifundefined{bv@\@citeb\@extra@b@citeb}{%
1214                     \let\NAT@name=\NAT@all@names

```

```

1215     \global\@namedef{bv@\@citeb\@extra@b@citeb}{-}{-}%
1216 \fi
1217 \ifNAT@full\let\NAT@nm\NAT@all@names\else
1218   \let\NAT@nm\NAT@name\fi
1219 \ifNAT@swa
1220   \c@lNAT@citexnum@swatrue
1221 \else
1222   \ifcase\NAT@ctype\relax
1223     \ifx\NAT@last@nm\NAT@nm \NAT@yrsep\penalty\@m\NAT@space\else
1224       \@citea \NAT@test{1}\ \NAT@@open
1225       \if*#1*\else#1\ \fi\fi \NAT@mbox{%
1226         \hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1227         {\citenumfont\NAT@num}\hyper@natlinkend}%
1228         \def\@citea{\NAT@@close\NAT@sep\penalty\@m\ }%
1229 \or\@citea
1230   \hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1231   \NAT@test{\NAT@ctype}\hyper@natlinkend
1232   \def\@citea{\NAT@sep\penalty\@m\ }%
1233 \or\@citea
1234   \hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1235   \NAT@test{\NAT@ctype}\hyper@natlinkend
1236   \def\@citea{\NAT@sep\penalty\@m\ }%
1237 \or\@citea
1238   \hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1239   \NAT@alias\hyper@natlinkend
1240   \def\@citea{\NAT@sep\penalty\@m\ }%
1241 \fi\fi
1242 }}%
1243 \ifnum\NAT@sort>1\relax\NAT@last@yr\fi
1244 \ifNAT@swa\else\ifnum\NAT@ctype=0\if*#2*\else
1245 \NAT@cmt#2\fi \NAT@@close\fi\fi}{#1}{#2}}
1246

```

\c@lNAT@citex@swatrue Holds some of the internals of the original \NAT@citex.

```

1247 \newcommand{\c@lNAT@citex@swatrue}{%
1248   \ifcase\NAT@ctype
1249     \if\relax\NAT@date\relax
1250       \@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1251       \NAT@nmfmt{\NAT@nm}\NAT@date\hyper@natlinkend
1252     \else
1253       \ifx\NAT@last@nm\NAT@nm\NAT@yrsep
1254         \ifx\NAT@last@yr\NAT@year
1255           \hyper@natlinkstart{\@citeb\@extra@b@citeb}\NAT@exlab
1256           \hyper@natlinkend
1257         \else
1258           \unskip\
1259           \hyper@natlinkstart{\@citeb\@extra@b@citeb}\NAT@date
1260           \hyper@natlinkend
1261         \fi
1262       \else\@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%

```



```

1263     \NAT@nmfmt{\NAT@nm}%
1264     \hyper@natlinkbreak{\NAT@aysep\ }{\@citeb\@extra@b@citeb}%
1265     \NAT@date\hyper@natlinkend
1266     \fi
1267     \fi
1268 \or\@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1269     \NAT@nmfmt{\NAT@nm}\hyper@natlinkend
1270 \or\@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1271     \NAT@date\hyper@natlinkend
1272 \or\@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1273     \NAT@alias\hyper@natlinkend
1274 \fi \def\@citea{\NAT@sep\ }%
1275 }
1276

```

`\c@laNAT@citex` We redefine the original `\NAT@citex` macro for the main document.

```

1277 \def\NAT@citex%
1278   [#1] [#2] #3{%
1279   \NAT@sort@cites{#3}%
1280   \let\@citea\@empty
1281   \@cite{\let\NAT@nm\@empty\let\NAT@year\@empty
1282     \@for\@citeb:=\NAT@cite@list\do
1283     {\edef\@citeb{\expandafter\@firstofone\@citeb}%
1284       \c@lNATwritemainbibdate %%% change here
1285       {\let\NAT@last@nm=\NAT@nm\let\NAT@last@yr=\NAT@year
1286         \NAT@parse{\@citeb}%
1287         \ifNAT@longnames\@ifundefined{bv@\@citeb\@extra@b@citeb}{%
1288           \let\NAT@name=\NAT@all@names
1289           \global\@namedef{bv@\@citeb\@extra@b@citeb}{}}{}}%
1290         \fi
1291         \ifNAT@full\let\NAT@nm\NAT@all@names\else
1292           \let\NAT@nm\NAT@name\fi
1293         \ifNAT@swa
1294           \c@lNAT@citex@swatru
1295         \else
1296           \ifcase\NAT@ctype
1297             \if\relax\NAT@date\relax
1298               \@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1299               \NAT@nmfmt{\NAT@nm}\hyper@natlinkend
1300             \else
1301               \ifx\NAT@last@nm\NAT@nm\NAT@yrsep
1302                 \ifx\NAT@last@yr\NAT@year
1303                   \hyper@natlinkstart{\@citeb\@extra@b@citeb}\NAT@exlab
1304                   \hyper@natlinkend
1305                 \else\unskip\
1306                   \hyper@natlinkstart{\@citeb\@extra@b@citeb}\NAT@date
1307                   \hyper@natlinkend
1308                 \fi
1309               \else\@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1310               \NAT@nmfmt{\NAT@nm}%

```

```

1311         \hyper@natlinkbreak{\ \NAT@@open@if*#1*else#1\ \fi}%
1312         {\@citeb\@extra@b@citeb}%
1313         \NAT@date\hyper@natlinkend\fi
1314     \fi
1315     \or\@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1316         \NAT@nmfmt{\NAT@nm}\hyper@natlinkend
1317     \or\@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1318         \NAT@date\hyper@natlinkend
1319     \or\@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1320         \NAT@alias\hyper@natlinkend
1321     \fi \if\relax\NAT@date\relax\def\@citea{\NAT@sep\ }%
1322         \else\def\@citea{\NAT@@close\NAT@sep\ }\fi
1323 \fi
1324 }}\ifNAT@swa\else\if*#2*\else\NAT@cmt#2\fi
1325 \if\relax\NAT@date\relax\else\NAT@@close\fi\fi}{#1}{#2}}
1326

```

`\c@lbNAT@citex` The local version of `\NAT@citex`.

```

1327 \def\c@lbNAT@citex[#1][#2]#3{%
1328     \ifc@lcombib \c@lNAT@nocite{#3} \fi      %%% change here
1329     \NAT@sort@cites{#3}%
1330     \let\@citea\@empty
1331     \@cite{\let\NAT@nm\@empty\let\NAT@year\@empty
1332         \@for\@citeb:=\NAT@cite@list\do
1333         {\edef\@citeb{\expandafter\@firstofone\@citeb}%
1334             \c@lNAT@writelocalbibdate      %%% change here
1335             {\let\NAT@last@nm=\NAT@nm\let\NAT@last@yr=\NAT@year
1336                 \NAT@parse{\@citeb}%
1337                 \ifNAT@longnames\@ifundefined{bv@\@citeb\@extra@b@citeb}{%
1338                     \let\NAT@name=\NAT@all@names
1339                     \global\@namedef{bv@\@citeb\@extra@b@citeb}{}}{}}%
1340             \fi
1341             \ifNAT@full\let\NAT@nm\NAT@all@names\else
1342                 \let\NAT@nm\NAT@name\fi
1343             \ifNAT@swa
1344                 \c@lNAT@citex@swatrue
1345             \else
1346                 \ifcase\NAT@ctype
1347                 \if\relax\NAT@date\relax
1348                     \@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1349                     \NAT@nmfmt{\NAT@nm}\hyper@natlinkend
1350                 \else
1351                     \ifx\NAT@last@nm\NAT@nm\NAT@yrsep
1352                     \ifx\NAT@last@yr\NAT@year
1353                         \hyper@natlinkstart{\@citeb\@extra@b@citeb}\NAT@exlab
1354                         \hyper@natlinkend
1355                     \else\unskip\
1356                         \hyper@natlinkstart{\@citeb\@extra@b@citeb}\NAT@date
1357                         \hyper@natlinkend
1358                     \fi

```

```

1359         \else\@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1360         \NAT@nmfmt{\NAT@nm}%
1361         \hyper@natlinkbreak{\ \NAT@@open\if*#1*\else#1\ \fi}%
1362         {\@citeb\@extra@b@citeb}%
1363         \NAT@date\hyper@natlinkend\fi
1364     \fi
1365     \or\@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1366     \NAT@nmfmt{\NAT@nm}\hyper@natlinkend
1367     \or\@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1368     \NAT@date\hyper@natlinkend
1369     \or\@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1370     \NAT@alias\hyper@natlinkend
1371     \fi \if\relax\NAT@date\relax\def\@citea{\NAT@sep\ }%
1372     \else\def\@citea{\NAT@@close\NAT@sep\ }\fi
1373 \fi
1374 }}\ifNAT@swa\else\if*#2*\else\NAT@cmt#2\fi
1375 \if\relax\NAT@date\relax\else\NAT@@close\fi\fi-#{1}-#{2}}
1376

```

`\c@laNATnocite` A main document version of the `natbib` `\nocite`.

```

\nocite 1377 \newcommand\c@laNATnocite[1]{\@bsphack
1378 \for\@citeb:=#1\do{%
1379 \edef\@citeb{\expandafter\@firstofone\@citeb}%
1380 \if@filesw\immediate\write\@mainaux{\string\citation{\@citeb}}\fi
1381 \if*\@citeb\else
1382 \@ifundefined{b@\@citeb\@extra@b@citeb}{%
1383 \NAT@citeundefined \PackageWarning{natbib}%
1384 {Citation ‘\@citeb’ undefined}}{\fi}%
1385 \esphack}
1386 \renewcommand{\nocite}[1]{\c@laNATnocite{#1}}
1387

```

`\c@lbNATnocite` The local version of `\nocite`.

```

1388 \newcommand\c@lbNATnocite[1]{\@bsphack
1389 \for\@citeb:=#1\do{%
1390 \edef\@citeb{\expandafter\@firstofone\@citeb}%
1391 \if@filesw\immediate\write\@auxout{\string\citation{\@citeb}}\fi
1392 \if*\@citeb\else
1393 \@ifundefined{B?\jobname?\@citeb\@extra@b@citeb}{%
1394 \NAT@citeundefined \PackageWarning{natbib}%
1395 {Citation ‘\@citeb’ undefined}}{\fi}%
1396 \esphack}
1397

```

`\NAT@wrout` Main version of the original `\NAT@wrout`.

```

1398 \renewcommand{\NAT@wrout}[5]{%
1399 \if@filesw
1400 {\let\protect\noexpand\let~\relax
1401 \immediate

```

```

1402     \write\@mainaux{\string\bibcite{#5}{#1}{#2}{#3}{#4}}}\fi
1403 \ignorespaces}
1404

\c@lbNAT@wrouT Local version of the original \NAT@wrouT.
1405 \newcommand{\c@lbNAT@wrouT}[5]{%
1406   \if@filesW
1407     {\let\protect\noexpand\let~\relax
1408     \immediate
1409     \write\@auxout{\string\bibcite{#5}{#1}{#2}{#3}{#4}}}\fi
1410 \ignorespaces}
1411

\c@laNAT@parse Main and local versions of \NAT@parse.
\c@lbNAT@parse 1412 \newcommand\c@laNAT@parse[1]{%
1413   \let\protect=\@unexpandable@protect\let~\relax
1414   \let\active@prefix=\@gobble
1415   \xdef\NAT@temp{\csname b@#1\@extra@b@citeb\endcsname}}%
1416   \expandafter\NAT@split\NAT@temp????@%
1417   \expandafter\NAT@parse@date\NAT@date????@%
1418   \ifciteindex\NAT@index\fi}
1419
1420 \newcommand\c@lbNAT@parse[1]{%
1421   \let\protect=\@unexpandable@protect\let~\relax
1422   \let\active@prefix=\@gobble
1423   \xdef\NAT@temp{\csname B?\jobname?@#1\@extra@b@citeb\endcsname}}%
1424   \expandafter\NAT@split\NAT@temp????@%
1425   \expandafter\NAT@parse@date\NAT@date????@%
1426   \ifciteindex\NAT@index\fi}
1427

\c@laNAT@lbibitem Main and local version of \@lbibitem.
\c@lbNAT@lbibitem 1428 \def\c@laNAT@lbibitem[#1]#2{%
1429   \if\relax\@extra@b@citeb\relax\else
1430     \@ifundefined{br@#2\@extra@b@citeb}{-}{%
1431       \@namedef{br@#2}{\@nameuse{br@#2\@extra@b@citeb}}}\fi
1432     \@ifundefined{b@#2\@extra@b@citeb}{\def\NAT@num{}}{\NAT@parse{#2}}%
1433     \item[\hfil\hyper@natanchorstart{#2\@extra@b@citeb}\@biblabel{\NAT@num}%
1434     \hyper@natanchorend]%
1435     \NAT@ifcmd#1(0)(0)\@nil{#2}}
1436
1437 \def\c@lbNAT@lbibitem[#1]#2{%
1438   \if\relax\@extra@b@citeb\relax\else
1439     \@ifundefined{br@#2\@extra@b@citeb}{-}{%
1440       \@namedef{br@#2}{\@nameuse{br@#2\@extra@b@citeb}}}\fi
1441     \@ifundefined{B?\jobname?@#2\@extra@b@citeb}{\def\NAT@num{}}{\NAT@parse{#2}}%
1442     \item[\hfil\hyper@natanchorstart{#2\@extra@b@citeb}\@biblabel{\NAT@num}%
1443     \hyper@natanchorend]%
1444     \NAT@ifcmd#1(0)(0)\@nil{#2}}
1445

```

`\c@laNATbibtex` Main and local versions of `\NATbibtex`.

```

\c@lbNATbibtex 1446 \newcommand\c@laNATbibtex[2]{\@ifundefined{b@#1\@extra@binfo}\relax
1447   {\NAT@citmultiple
1448   \PackageWarningNoLine{natbib}{Citation ‘#1’ multiply defined}}%
1449   \global\@namedef{b@#1\@extra@binfo}{#2}}
1450
1451 \newcommand\c@lbNATbibtex[2]{\@ifundefined{B?\jobname?@#1\@extra@binfo}\relax
1452   {\NAT@citmultiple
1453   \PackageWarningNoLine{natbib}{Citation ‘#1’ multiply defined}}%
1454   \global\@namedef{B?\jobname?@#1\@extra@binfo}{#2}}
1455
1456 \ifc@lonebib
1457   \ifc@lcombib
1458   \else
1459     \renewcommand\c@lbNATbibtex[2]{\@ifundefined{b@#1\@extra@binfo}\relax
1460     {\NAT@citmultiple
1461     \PackageWarningNoLine{natbib}{Citation ‘#1’ multiply defined}}%
1462     \global\@namedef{B?\jobname?@#1\@extra@binfo}{#2}}
1463   \fi
1464 \fi
1465

```

`\c@laNAT@testdef` Main and local versions of `\NAT@testdef`.

```

\c@lbNAT@testdef 1466 \newcommand\c@laNAT@testdef[2]{%
1467   \def\NAT@temp{#2}\expandafter \ifx \csname b@#1\@extra@binfo\endcsname
1468   \NAT@temp \else \ifNAT@swa \NAT@swafalse
1469     \PackageWarningNoLine{natbib}{Citation(s) may have
1470     changed.\MessageBreak
1471     Rerun to get citations correct}\fi\fi}
1472
1473 \newcommand\c@lbNAT@testdef[2]{%
1474   \def\NAT@temp{#2}\expandafter \ifx \csname B?\jobname?@#1\@extra@binfo\endcsname
1475   \NAT@temp \else \ifNAT@swa \NAT@swafalse
1476     \PackageWarningNoLine{natbib}{Citation(s) may have
1477     changed.\MessageBreak
1478     Rerun to get citations correct}\fi\fi}
1479

```

`\c@laNAT@make@cite@list` Main and local versions of `\NAT@make@cite@list`.

```

\c@lbNAT@make@cite@list 1480 \ifnum\NAT@sort>0
1481   \begingroup \catcode'\_ =8
1482   \gdef\c@laNAT@make@cite@list{%
1483     \edef\@citeb{\expandafter\@firstofone\@citeb}%
1484     \@ifundefined{b@\@citeb\@extra@b@citeb}{\def\NAT@num{A}}%
1485     {\NAT@parse{\@citeb}}%
1486     \ifcat _\ifnum\z<0\NAT@num _\else A\fi
1487     \@tempcnta\NAT@num \relax
1488     \ifnum \@tempcnta>\@tempcntb
1489       \edef\NAT@num@list{\NAT@num@list \@celt{\NAT@num}}%

```

```

1490     \edef\NAT@cite@list{\NAT@cite@list\@citeb,}%
1491     \@tempcntb\@tempcnta
1492   \else
1493     \let\NAT@cite@list=\NAT@cite@list \def\NAT@cite@list{}%
1494     \edef\NAT@num@list{\expandafter\NAT@num@celt \NAT@num@list \@gobble @}%
1495     {\let\@celt=\NAT@celt\NAT@num@list}%
1496   \fi
1497   \else
1498     \edef\NAT@nonsort@list{\NAT@nonsort@list\@citeb,}%
1499 \fi}
1500 \endgroup
1501
1502 \begingroup \catcode'\_ =8
1503   \gdef\c@lbNAT@make@cite@list{%
1504     \edef\@citeb{\expandafter\@firstofone\@citeb}%
1505     \@ifundefined{B?\jobname?\@citeb\@extra@b@citeb}{\def\NAT@num{A}}%
1506     {\NAT@parse{\@citeb}}%
1507     \ifcat _\ifnum\z@<0\NAT@num _\else A\fi
1508     \@tempcnta\NAT@num \relax
1509     \ifnum \@tempcnta>\@tempcntb
1510       \edef\NAT@num@list{\NAT@num@list \@celt{\NAT@num}}%
1511       \edef\NAT@cite@list{\NAT@cite@list\@citeb,}%
1512       \@tempcntb\@tempcnta
1513     \else
1514       \let\NAT@cite@list=\NAT@cite@list \def\NAT@cite@list{}%
1515       \edef\NAT@num@list{\expandafter\NAT@num@celt \NAT@num@list \@gobble @}%
1516       {\let\@celt=\NAT@celt\NAT@num@list}%
1517     \fi
1518   \else
1519     \edef\NAT@nonsort@list{\NAT@nonsort@list\@citeb,}%
1520 \fi}
1521 \endgroup
1522 \fi
1523

```

Some things are done at the end of a document.

```

1524 \AtEndDocument{%
1525   \ifNAT@stdbst\if@filesw\immediate\write
1526     \@mainaux{\string\global\string\NAT@numberstrue}\fi\fi
1527   }
1528
1529 \AtEndDocument{\NAT@swatrue\let\bibcite\NAT@testdef}
1530

```

`\c@laNAT@set@cites` Main version of `\NAT@set@cites`.

```

1531 \newcommand{\c@laNAT@set@cites}{\ifNAT@numbers
1532   \ifNAT@super \let\@cite\NAT@citesuper
1533   \def\NAT@mbox##1{\unskip\nobreak\hspace{1\p@}\textsuperscript{##1}}%
1534   \let\citeyearpar=\citeyear

```

```

1535     \let\NAT@space\relax\else
1536     \let\NAT@mbox=\mbox
1537     \let\@cite\NAT@citenum \def\NAT@space{ } \fi
1538     \let\@citex\NAT@citexnum
1539     \ifx\@biblabel\@empty\let\@biblabel\NAT@biblabelnum\fi
1540     \let\@bibsetup\NAT@bibsetnum
1541     \def\natexlab##1{ }%
1542 \else
1543     \let\@cite\NAT@cite
1544     \let\@citex\NAT@citex
1545     \let\@biblabel\NAT@biblabel
1546     \let\@bibsetup\NAT@bibsetup
1547     \def\natexlab##1{##1}%
1548 \fi}
1549

```

`\c@lbNAT@set@cites` Local version of `\NAT@set@cites`.

```

1550 \newcommand{\c@lbNAT@set@cites}{\ifNAT@numbers
1551 \ifNAT@super \let\@cite\NAT@citesuper
1552     \def\NAT@mbox##1{\unskip\nobreak\hspace{1\p@}\textsuperscript{##1}}%
1553     \let\citeyearpar=\citeyear
1554     \let\NAT@space\relax\else
1555     \let\NAT@mbox=\mbox
1556     \let\@cite\NAT@citenum \def\NAT@space{ } \fi
1557     \let\@citex\NAT@citexnum
1558     \ifx\@biblabel\@empty\let\@biblabel\NAT@biblabelnum\fi
1559     \let\@bibsetup\NAT@bibsetnum
1560     \def\natexlab##1{ }%
1561 \else
1562     \let\@cite\NAT@cite
1563     \let\@citex\NAT@citex
1564     \let\@biblabel\NAT@biblabel
1565     \let\@bibsetup\NAT@bibsetup
1566     \def\natexlab##1{##1}%
1567 \fi}
1568

```

For the main document, use `\c@la...` to replace the `\NAT...` definitions.

```

1569 \let\NAT@parse\c@laNAT@parse
1570 %%\let\nocite\c@laNATnocite
1571 %%\let\NAT@wrout\c@laNAT@wrout
1572 \let\@lbibitem\c@laNAT@lbibitem
1573 \let\bibcite\c@laNAT@bibcite
1574 \let\NAT@testdef\c@laNAT@testdef
1575 %%\let\NAT@make@cite@list\c@laNAT@make@cite@list
1576 %%\let\NAT@citexnum\c@laNAT@citexnum
1577 %%\let\NAT@citex\c@laNAT@citex
1578

```

And similarly for imported documents

```

1579 \let\c@oldsetuppapers\setuppapers
1580 \newcommand{\c@lNATsetuplocal}{%
1581   \let\NAT@parse\c@lbnAT@parse
1582   \let\nocite\c@lbnATnocite
1583   \let\NAT@wroutrout\c@lbnAT@wroutrout
1584   \let\@lbibitem\c@lbnAT@lbibitem
1585   \let\bibcite\c@lbnATbibcite
1586   \let\NAT@testdef\c@lbnAT@testdef
1587   \let\NAT@make@cite@list\c@lbnAT@make@cite@list
1588   \let\NAT@citexnum\c@lbnAT@citexnum
1589   \let\NAT@citex\c@lbnAT@citex
1590   \let\NAT@set@cites\c@lbnAT@set@cites
1591   \c@lbnAT@set@cites
1592 }
1593 \renewcommand{\setuppapers}{%
1594   \c@oldsetuppapers
1595   \ifc@lcombib
1596     \c@lNATsetuplocal
1597   \else
1598     \ifc@lonebib
1599     \else
1600       \c@lNATsetuplocal
1601     \fi
1602   \fi
1603 }
1604
    The end of this package
1605 </natpack>

```

### 13 The *combcite* package code

This package calls the *cite* package [Ars03] and then makes some minor changes to some of its macro definitions.

```
1606 <*citepack>
```

The usual preliminaries. The *cite* package is required and all options are passed to it to deal with.

```

1607 \@ifclassloaded{combine}{-}{%
1608   \PackageError{combcite}{The ‘combine’ class is expected}{\@ehc}}

```

By definition, we need the *cite* package, but first have to set up some option handling.

`\ifc@lbsuperopt` `\ifc@lbsuperopt` is a flag for if the *cite* superscript option has been used.

```

1609 \newif\ifc@lbsuperopt
1610 \c@lbsuperoptfalse

```

Now do the options.



```

1611 \DeclareOption{super}{\ExecuteOptions{superscript}}
1612 \DeclareOption{superscript}{\c@lbsubopttrue
1613                               \PassOptionsToClass{superscript}{cite}}
1614 \ProcessOptions
      We need the latest cite package (version 4.01 November 2003)
1615 \RequirePackageWithOptions{cite}[2003/11/04]
1616
      Need special versions of various macros for imported papers, principally to handle
      writing to the .aux files. Indicate these by prepending 'c@lb' to the name.

```

`\c@lbciten`

```

1617 \DeclareRobustCommand\c@lbciten[1]{%
1618   \begingroup
1619   \let\@safe@activesfalse\@empty
1620   %% \c@lb@nocite{#1}% ignores spaces, writes to .aux file, returns #1 in \@no@sparg
1621   \@nocite{#1}% ignores spaces, writes to .aux file, returns #1 in \@no@sparg
1622   \@tempcntb\m@ne    % \@tempcntb tracks highest number
1623   \let\@h@ld\@empty  % nothing held from list yet
1624   \let\@citea\@empty % no punctuation preceding first
1625   \let\@celt\delimiter % an unexpandable, but identifiable, token
1626   \def\@cite@list{}% % empty list to start
1627   \@for \@citeb:=\@no@sparg\do{\c@lb@make@cite@list}% make a sorted list of numbers
1628   % After sorted citelist is made, execute it to compress citation ranges.
1629   \@tempcnta\m@ne    % no previous number
1630   \let\@celt\@compress@cite \@cite@list % output number list with compression
1631   \@h@ld % output anything held over
1632   \endgroup
1633   \@restore@auxhandle
1634 }
1635

```

`\c@lb@make@cite@list`

```

1636 \def\c@lb@make@cite@list{%
1637   \expandafter\let \expandafter\@B@citeB
1638   \csname B?\jobname?\@@citeb\@extra@b@citeb \endcsname
1639   \ifx\@B@citeB\relax % undefined: output ? and warning
1640     \@citea {\bfseries ?}\let\@citea\citepunct \G@refundefinedtrue
1641     \@warning {Citation '\@citeb' on page \thepage\space undefined}%
1642     \oc@verbo \global\@namedef{B?\jobname?\@@citeb\@extra@b@citeb}{?}%
1643     \else % defined % remove previous line to repeat warnings
1644       \ifcat _\ifnum\z<0\@B@citeB _\else A\fi % a positive number, put in list
1645       \addto@cite@list
1646     \else % citation is not a number, output immediately
1647       \citea \citeform{\@B@citeB}\let\@citea\citepunct
1648     \fi\fi}
1649

```

`\c@lbcite` The revision to `\cite` depends on whether the superscript option has been used.

```

1650 \ifc@lpsuperopt
1651   \DeclareRobustCommand{\c@lbcite}{%
1652     \@ifnextchar[{\@tempwattrue\c@lbcitex}{\@tempwafalse\c@lbcitew}}
1653 \else
1654   \DeclareRobustCommand{\c@lbcite}{%
1655     \@ifnextchar[{\@tempwattrue\c@lbcitex}{\@tempwafalse\c@lbcitex[]}]
1656 \fi
1657

\c@lbcitex
1658 \def\c@lbcitex[#1]#2{\@cite{\c@lbciten{#2}}{#1}}
1659

\c@lbcitew
1660 \def\c@lbcitew#1{\begingroup \leavevmode
1661   \@if@fillglue \lastskip \relax \unskip
1662   \def\@tempa{\@tempcnta\spacefactor
1663     \%/ this allows the last word to be hyphenated, and it looks better.
1664     \@citess{\c@lbciten{#1}}\spacefactor\@tempcnta
1665     \endgroup \@restore@auxhandle}%
1666   \oc@movep\relax}% check for following punctuation (depending on options)
1667

\c@lbnocite
1668 \DeclareRobustCommand\c@lbnocite[1]{%
1669   \@bsphack \@nocite{#1}%
1670   \@for \@citeb:=\@no@sparg\do{\@ifundefined{B?\jobname?\@citeb\@extra@b@citeb}}%
1671     {\G@refundefinedtrue\@warning{Citation ‘\@citeb’ undefined}}%
1672     \oc@verbo \global\@namedef{B?\jobname?\@citeb\@extra@b@citeb}{?}}}%
1673   \@esphack}
1674

\@nocite
1675 \def\@nocite#1{\begingroup\let\protect\string% normalize active chars
1676 \xdef\@no@sparg{\expandafter\@ignsp#1 \: }\endgroup% and remove ALL spaces
1677 \if@filesw \immediate\write\@newciteauxhandle % = \@auxout, except with multibib
1678   {\string\citation {\@no@sparg}}\fi
1679 }
1680

Finally, add the revision to \setuppapers.
1681 \g@addto@macro{\setuppapers}{\let\cite\c@lbcite}
1682 \g@addto@macro{\setuppapers}{\let\citenum\c@lbciten}
1683 \g@addto@macro{\setuppapers}{\let\citeonline\c@lbciten}
1684

The end of this package
1685 </citepack>

```

## A Original code

This section presents the original kernel code before modification.

The `\documentclass` macro is specified in `ltclass.dtx`.

```
\def\documentclass{%
  \let\documentclass\@twoclasseserror
  \if@compatibility\else\let\usepackage\RequirePackage\fi
  \@fileswithoptions\@clsextension}
\@onlypreamble\documentclass
```

The document environment is specified between `ltfiles.dtx` and `ltmiscen.dtx`. The `\document` command is given in `ltfiles.dtx`.

```
\def\document{\endgroup
  \ifx\@unusedoptionlist\@empty\else
    \@latex@warning@no@line{Unused global option(s):^^J%
      \spaces[\@unusedoptionlist]}%
  \fi
  \@colht\textheight
  \@colroom\textheight \vsize\textheight
  \columnwidth\textwidth
  \@clubpenalty\clubpenalty
  \if@twocolumn
    \advance\columnwidth -\columnsep
    \divide\columnwidth\tw@ \hsize\columnwidth \@firstcolumntrue
  \fi
  \hsize\columnwidth \linewidth\hsize
  \begingroup\@floatplacement\@dblfloatplacement
  \makeatletter\let\@writefile\@gobbletwo
  \global\let\@multiplelabels\relax
  \input{\jobname.aux}%
  \endgroup
  \if@filesw
    \immediate\openout\@mainaux\jobname.aux
    \immediate\write\@mainaux{\relax}%
  \fi
  \process@table
  \let\glb@currsize\@empty
  \normalsize
  \everypar{}%
  \ifx\normalsfcodes\@empty
    \ifnum\sfcode'\.=\@m
      \let\normalsfcodes\frenchspacing
    \else
      \let\normalsfcodes\nonfrenchspacing
    \fi
  \fi
  \noskipsecfalse
```

```

\let \@refundefined \relax
\let\AtBeginDocument\@firstofone
\@begindocumenthook
\ifdim\topskip<1sp\global\topskip 1sp\relax\fi
\global\@maxdepth\maxdepth
\global\let\@begindocumenthook\@undefined
\ifx\@listfiles\@undefined
  \global\let\@filelist\relax
  \global\let\@addtofilelist\@gobble
\fi
\gdef\do##1{\global\let ##1\@notprerr}%
\@preamblecmds
\global\let \@nodocument \relax
\global\let\do\noexpand
\ignorespaces}
\@onlypreamble\document

```

The `\enddocument` macro is specified in `ltmiscen.dtx`.

```

\def\enddocument{%
  \@enddocumenthook
  \@checkend{document}%
  \clearpage
  \begingroup
  \if@filesw
    \immediate\closeout\@mainaux
    \let\@setckpt\@gobbletwo
    \let\@newl@bel\@testdef
    \@tempwafalse
    \makeatletter \input\jobname.aux
  \fi
  \@dofilelist
  \ifdim \font@submax >\font@subfuzz\relax
    \@font@warning{Size substitutions with differences\MessageBreak
      up to \font@submax\space have occurred.\@gobbletwo}%
  \fi
  \@defaultsubs
  \@refundefined
  \if@filesw
    \ifx \@multiplelabels \relax
      \if@tempswa
        \@latex@warning@no@line{Label(s) may have changed.
          Rerun to get cross-references right}%
      \fi
    \else
      \@multiplelabels
    \fi
  \fi
\endgroup

```

```
\deadcycles\z@\@@end}
```

\maketitle is defined by each class. The following is from `classes.dtx` for the book, report and article classes.

```
\if@titlepage
\newcommand{\maketitle}{\begin{titlepage}%
\let\footnotesize\small
\let\footnoterule\relax
\let\footnote\thanks
\null\vfil
\vskip 60\p@
\begin{center}%
{\LARGE \@title \par}%
\vskip 3em%
{\large
\lineskip .75em%
\begin{tabular}[t]{c}%
\@author
\end{tabular}\par}%
\vskip 1.5em%
{\large \@date \par}%
\end{center}\par
\@thanks
\vfil\null
\end{titlepage}%
\setcounter{footnote}{0}%
\global\let\thanks\relax
\global\let\maketitle\relax
\global\let\@thanks\@empty
\global\let\@author\@empty
\global\let\@date\@empty
\global\let\@title\@empty
\global\let\title\relax
\global\let\author\relax
\global\let\date\relax
\global\let\and\relax
} % end titlepage \maketitle
\else
\newcommand{\maketitle}{\par
\begingroup
\renewcommand\thefootnote{\@fnsymbol\c@footnote}%
\def\@makefnmark{\rlap{\@textsuperscript{\normalfont\@thefnmark}}}%
\long\def\@makefntext##1{\parindent 1em\noindent
\hb@xt@1.8em{%
\hss\@textsuperscript{\normalfont\@thefnmark}}##1}%
\if@twocolumn
\ifnum \col@number=\@ne
\maketitle
```

```

        \else
        \twocolumn[\@maketitle]%
        \fi
    \else
    \newpage
    \global\@topnum\z@
    \@maketitle
    \fi
    \thispagestyle{plain}\@thanks
\endgroup
\setcounter{footnote}{0}%
\global\let\thanks\relax
\global\let\maketitle\relax
\global\let\@maketitle\relax
\global\let\@thanks\@empty
\global\let\@author\@empty
\global\let\@date\@empty
\global\let\@title\@empty
\global\let\title\relax
\global\let\author\relax
\global\let\date\relax
\global\let\and\relax
} % end non-titlepage \maketitle

\def\@maketitle{%
\newpage
\null
\vskip 2em%
\begin{center}%
\let \footnote \thanks
{\LARGE \@title \par}%
\vskip 1.5em%
{\large
\lineskip .5em%
\begin{tabular}[t]{c}%
\@author
\end{tabular}\par}%
\vskip 1em%
{\large \@date}%
\end{center}\par
\vskip 1.5em}
\fi

```

The definitions of `\title` and friends are in `ltsect.dtx`.

```

\def\title#1{\gdef\@title{#1}}
\def\@title{\@latex@error{No \noexpand\title given}\@ehc}
\def\author#1{\gdef\@author{#1}}
\def\@author{\@latex@warning@no@line{No \noexpand\author given}}

```

```

\def\date#1{\gdef\@date{#1}}
  \gdef\@date{\today}
\def\thanks#1{\footnotemark
  \protected@xdef\@thanks{\@thanks
    \protect\footnotetext[\the\c@footnote]{#1}}}
  \let\@thanks\@empty
\def\and{%          % \begin{tabular}
  \end{tabular}}%
  \hskip 1em \@plus.17fil%
  \begin{tabular}[t]{c}}%    % \end{tabular}

```

The definition of `\@starttoc` from `ltsect.dtx`.

```

\def\@starttoc#1{%
  \begingroup
  \makeatletter
  \@input{\jobname.#1}%
  \if@filesw
    \expandafter\newwrite\csname tf@#1\endcsname
    \immediate\openout \csname tf@#1\endcsname \jobname.#1\relax
  \fi
  \@nobreakfalse
\endgroup}

```

The definition of `\@writefile` from `ltmiscen.dtx`.

```

\long\def\@writefile#1#2{%
  \@ifundefined{tf@#1}\relax
  {\@temptokena{#2}%
  \immediate\write\csname tf@#1\endcsname{\the\@temptokena}%
  }}

```

The definitions of `\addtocontents` and `addcontentsline` from `ltsect.dtx`.

```

\long\def\addtocontents#1#2{%
  \protected@write\@auxout
  {\let\label\@gobble \let\index\@gobble \let\glossary\@gobble}%
  {\string\@writefile{#1}{#2}}}
\def\addcontentsline#1#2#3{%
  \addtocontents{#1}{\protect\contentsline{#2}{#3}{\thepage}}}

```

The definitions of `\label`, `\@setref`, `\newlabel`, `\ref` and `\pageref` from `ltxref.dtx`.

```

\def\label#1{\@bsphack
  \protected@write\@auxout{%

```

```

        {\string\newlabel{#1}{\@currentlabel}{\thepage}}}%
\@esphack}
\def\@setref#1#2#3{%
\ifx#1\relax
\protect\G@refundefinedtrue
\nfss@text{\reset@font\bfseries ??}%
\@latex@warning{Reference ‘#3’ on page \thepage \space
                undefined}%
\else
\expandafter#2#1\null
\fi}
\def\newlabel{\@newl@bel r}
\def\ref#1{\expandafter\@setref\csname r@#1\endcsname
           \@firstoftwo{#1}}
\def\pageref#1{\expandafter\@setref\csname r@#1\endcsname
               \@secondoftwo{#1}}

```

The definitions of `\biblecite` and `\@citex` from `ltxbibl.dtx`.

```

\def\biblecite{\@newl@bel b}
\def\@citex[#1]#2{%
\let\@citea\@empty
\@cite{\@for\@citeb:=#2\do
        {\@citea\def\@citea{\penalty\@m\ }%
\edef\@citeb{\expandafter\@firstofone\@citeb\@empty}}%
\if@filesw\immediate\write\@auxout{\string\citation{\@citeb}}\fi
\ifundefined{b\@citeb}{\mbox{\reset@font\bfseries ??}%
\G@refundefinedtrue
\@latex@warning
{Citation ‘\@citeb’ on page \thepage \space undefined}}%
{\hbox{\csname b\@citeb\endcsname}}}{#1}}

```

## References

- [Ars03] Donald Arseneau. *Cite: Compressed, sorted lists of on-line or super-script numerical citations*. November 2003. (Available from CTAN in directory `macros/latex/contrib/cite`)
- [Dal99] Patrick W. Daly. *Natural Sciences Citations and References*. May 1999. (Available from CTAN in directory `macros/latex/contrib/natbib`)
- [GMS94] Michel Goossens, Frank Mittelbach, and Alexander Samarin. *The LaTeX Companion*. Addison-Wesley Publishing Company, 1994.
- [Oos96] Piet van Oostrum. *Page layout in LaTeX*. June 1996. (Available from CTAN in directory `macros/latex/contrib/fancyhdr`)



## 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.

<b>Symbols</b>	1229,	1232,	1306,	1309,
<code>\/</code> .....	1663	1233,	1236,	1312,
<code>\:</code> .....	1676	1237,	1240,	1317,
<code>\@end</code> .....	357, 374	1250,	1262,	1332,
<code>\@B@citeB</code> ....	1637,	1268,	1270,	1336,
1639, 1644, 1647		1272,	1274,	1339,
<code>\@addto@cite@list</code>	1645	1280,	1298,	1353,
<code>\@addtofilelist</code>	248, 287	1309,	1315,	1359,
<code>\@author</code> ..	409, 433,	1317,	1319,	1365,
471, 494, 1064, 1070		1321,	1322,	1369,
<code>\@auxout</code> .....	387,	1330,	1348,	1382,
558, 561, 576,		1359,	1365,	1389–1393,
603, 622, 752,		1367,	1369,	1395,
755, 1112, 1119,		1371,	1372,	1485,
1391, 1409, 1677		1624, 1640, 1647		1498,
<code>\@begindocumenthook</code>				1504–
..... 242,				1506,
245, 281, 284, 973				1511,
<code>\@biblabel</code> ...	1433,	<code>\@citeb</code> 596, 597, 600,		1519,
1442, 1539,		601, 603, 604,		1627,
1545, 1558, 1564		607, 608, 611–		1638,
<code>\@bibsetup</code> ...	1540,	615, 620–624,		1642,
1546, 1559, 1565		632, 634, 1097,		1670–1672
<code>\@bspback</code> .....		1098,	1101,	<code>\@citess</code> .....
. 575, 610, 619,		1104,	1105,	1664
1377, 1388, 1669		1108,	1112,	<code>\@citex</code> ..
<code>\@bsx</code> .....	164, 165	1113,	1116,	951, 1538,
<code>\@celt</code> .....	1489,	1119,	1120,	1544, 1557, 1563
1495, 1510,		1123,	1128,	<code>\@classoptionslist</code> .
1516, 1625, 1630		1151,	1162,	12
<code>\@chapapp</code> .....	379	1163,	1166,	<code>\@clubpenalty</code> .....
<code>\@checkend</code> ...	343, 361	1167,	1169,	197
<code>\@cite@list</code> .	1626, 1630	1181,	1185,	<code>\@colht</code> .....
<code>\@citea</code> 631, 633, 1105,		1189,	1193,	194
1120, 1127,		1208,	1209,	<code>\@colroom</code> .....
1142, 1147,		1212,	1213,	195
1151, 1155,		1215,	1226,	<code>\@compress@cite</code> ..
1160, 1179,		1230,	1234,	1630
1183, 1184,		1238,	1250,	<code>\@currentlabel</code> ....
1187, 1188,		1255,	1259,	577
1191, 1192,		1262,	1264,	<code>\@currrent</code> .....
1195, 1206,		1268,	1270,	187
1224, 1228,		1272,	1282,	<code>\@date</code> 410, 434, 472, 497
		1283,	1286,	<code>\@dblfloatplacement</code>
		1287,	1289,	..... 214, 265
		1298,	1303,	<code>\@defaultsubs</code> .....
				327
				<code>\@definecounter</code> ...
				.... 129, 136, 153
				<code>\@dofilelist</code> .....
				322
				<code>\@ehc</code> ... 984, 1094, 1608
				<code>\@enddocumenthook</code> .
				..... 342, 360
				<code>\@endtheorem</code> .....
				126
				<code>\@espack</code> .....
				. 578, 616, 625,

- 1385, 1396, 1673
- `\@evenfoot` ... 675,  
682, 689, 697,  
704, 711, 721, 729
- `\@evenhead` ... 673,  
680, 687, 695,  
702, 709, 719, 727
- `\@extra@b@citeb` 1098,  
1105, 1113,  
1120, 1128,  
1151, 1167,  
1169, 1181,  
1185, 1189,  
1193, 1213,  
1215, 1226,  
1230, 1234,  
1238, 1250,  
1255, 1259,  
1262, 1264,  
1268, 1270,  
1272, 1287,  
1289, 1298,  
1303, 1306,  
1309, 1312,  
1315, 1317,  
1319, 1337,  
1339, 1348,  
1353, 1356,  
1359, 1362,  
1365, 1367,  
1369, 1382,  
1393, 1415,  
1423, 1429–  
1433, 1438–  
1442, 1484,  
1505, 1638,  
1642, 1670, 1672
- `\@extra@b@info` . 1446,  
1449, 1451,  
1454, 1459,  
1462, 1467, 1474
- `\@filelist` ... 247, 286
- `\@fileswithoptions` .  
..... 174, 191
- `\@firstcolumntrue` . 200
- `\@firstofone` .....  
. 241, 280, 612,  
621, 634, 1163,  
1209, 1283,  
1333, 1379,
- 1390, 1483, 1504
- `\@firstoftwo` ..... 591
- `\@floatplacement` ..  
..... 214, 265
- `\@fnsymbol` ..... 440
- `\@font@warning` .... 324
- `\@for` ..... 12, 611,  
620, 632, 1162,  
1208, 1282,  
1332, 1378,  
1389, 1627, 1670
- `\@h@ld` ..... 1623, 1631
- `\@highpenalty` .....  
. 790, 795, 830,  
836, 848, 865, 875
- `\@if@fillglue` .... 1661
- `\@ifclassloaded` ...  
.. 983, 1093, 1607
- `\@ifdefinable` .....  
.... 128, 135, 141
- `\@ifnextchar` .. 119,  
154, 156, 1652, 1655
- `\@ifundefined` .....  
... 13, 89, 91,  
102, 111, 123,  
140, 237, 238,  
310–315, 597,  
604, 614, 623,  
656, 659, 1098,  
1105, 1113,  
1120, 1167,  
1213, 1287,  
1337, 1382,  
1393, 1430,  
1432, 1439,  
1441, 1446,  
1451, 1459,  
1484, 1505, 1670
- `\@ignsp` ..... 1676
- `\@input@` ..... 753
- `\@latex@error` ..... 188
- `\@latex@warning` 583,  
599, 606, 615, 624
- `\@latex@warning@no@line`  
.... 210, 259, 332
- `\@lbibitem` . 1572, 1584
- `\@listfiles` ... 246, 285
- `\@mainaux` . 220, 221,  
347, 387, 548,  
561, 562, 565,
- 568, 596, 613,  
755, 1097, 1104,  
1380, 1402, 1526
- `\@makefnmark` ..... 441
- `\@makefntext` ..... 442
- `\@maketitle` 428, 447,  
449, 454, 462, 1036
- `\@maxdepth` ... 244, 283
- `\@multiplelabels` ..  
. 216, 267, 330, 336
- `\@namedef` . 125, 126,  
142, 1169, 1215,  
1289, 1339,  
1431, 1440,  
1449, 1454,  
1462, 1642, 1672
- `\@nameuse` .... 142,  
656, 659, 1431, 1440
- `\@newciteauxhandle` 1677
- `\@newctr` ..... 129, 154
- `\@newl@bel` 350, 367,  
589, 646, 648, 651
- `\@no@sparg` ... 1620,  
1621, 1627,  
1670, 1676, 1678
- `\@nobreakfalse` .... 527
- `\@nocite` 1621, 1669, 1675
- `\@nocounterr` ..... 140
- `\@nodocument` .. 252, 291
- `\@noskipsecfalse` ..  
..... 234, 278
- `\@notprerr` ... 250, 289
- `\@oddfont` . 674, 681,  
688, 696, 697,  
703, 704, 710,  
711, 720, 728, 729
- `\@oddhead` .... 673,  
680, 687, 695,  
702, 709, 719, 727
- `\@othm` ..... 123
- `\@outputpage` ..... 235
- `\@partaux` .... 271,  
272, 348, 365, 752
- `\@pkgextension` .... 187
- `\@pnumwidth` 777, 778, 784
- `\@preamblecmds` 251, 290
- `\@refundefined` 240,  
279, 328, 355, 372
- `\@restore@auxhandle`  
..... 1633, 1665

- `\@safe@activesfalse` 1258, 1264, 1619  
`\@secondoftwo` . . . . . 593  
`\@secpenalty` .. 801, 842  
`\@setckpt` . . . . . 349, 366  
`\@setref` .. 590, 592, 940  
`\@spaces` . . . . . 211, 260  
`\@star@or@long` . . . . . 109  
`\@startsection` . . . . . 762, 767, 955  
`\@starttoc` . . . . . 933  
`\@tempa` . . . . . 1662  
`\@tempcntb` 1488, 1491, 1509, 1512, 1622  
`\@temptokena` .. 533, 534  
`\@testdef` . . . . . 350, 367  
`\@testopt` . . . . . 117  
`\@textsuperscript` . . . . . 441, 444  
`\@thanks` .. 412, 456, 470  
`\@thefnmark` . . . . . 441, 444  
`\@thm` . . . . . 125  
`\@thmcounter` .. 132, 137  
`\@thmcountersep` . . . . . 131  
`\@title` . . . . . 408, 432, 473, 491, 1051, 1057  
`\@titlepagefalse` .. 91  
`\@topnum` . . . . . 453  
`\@twoclasseserror` . 172  
`\@undefined` . . . . . 245, 246, 284, 285  
`\@unexpandable@protect` . . . . . 1413, 1421  
`\@unusedoptionlist` . . . . . 209, 211, 258, 260  
`\@writeckpt` . . . . . 754  
`\@writefile` . . . . . 215, 266, 550, 560, 564, 567, 570, 932  
`\@xnthm` . . . . . 123  
`\@ynthm` . . . . . 123  
`\_` . . . . . 1133, 1481, 1502  
`\_` .. 633, 1179, 1180, 1183, 1187, 1191, 1195, 1224, 1225, 1228, 1232, 1236, 1240,
- `\c@laNAT@citexnum` 1576  
`\c@laNAT@lbibitem` . . . . . 1428, 1572  
`\c@laNAT@make@cite@list` . . . . . 1480, 1575  
`\c@laNAT@parse` . . . . . 1412, 1569  
`\c@laNAT@set@cites` 1531  
`\c@laNAT@testdef` . . . . . 1466, 1574  
`\c@laNAT@wrount` . . . . . 1571  
`\c@laNAT@bibcite` . . . . . 1446, 1573  
`\c@laNAT@nocite` 1204, 1328, 1377, 1570  
`\c@lanocite` . . . . . 610, 629  
`\c@lapagestyle` 654, 978  
`\c@laps@plain` . . . . . 670, 722, 730  
`\c@lastyle` 385, 654, 966  
`\c@lauxfile` . . . . . 268, 271, 369, 750  
`\c@lb@citew` . 1652, 1660  
`\c@lb@citex` 627, 951, 1652, 1655, 1658  
`\c@lb@make@cite@list` . . . . . 1627, 1636  
`\c@lb@maketitle` . . . . . 462, 484, 1036  
`\c@lb@nocite` . . . . . 1620  
`\c@lb@setref` .. 575, 940  
`\c@lb@starttoc` 503, 933  
`\c@lb@writefile` 530, 932  
`\c@lb@addtocontents` . . . . . 556, 938  
`\c@lbbibcite` .. 627, 952  
`\c@lbcite` .. 1650, 1681  
`\c@lbciten` 1617, 1658, 1664, 1682, 1683  
`\c@lbdocument` . 205, 927  
`\c@lbdocumentclass` . . . . . 167, 925  
`\c@lbenddocument` . . . . . 341, 928  
`\c@lblabel` . . . . . 575, 939  
`\c@lbLoadClass` 186, 929  
`\c@lbmaketitle` . . . . . 459, 930, 931, 1033  
`\c@lbNAT@citex` . . . . . 1327, 1589
- A**
- `\active@prefix` . . . . . 1414, 1422  
`\addcontentsline` . . . . . 741, 745  
`\addtocontents` 736, 938  
`\and` . . . . . 1028  
`\appendiargdef` . . . . . 10, 162, 1019, 1025  
`\AtBeginDocument` . . . . . 241, 280  
`\AtEndDocument` . . . . . 1524, 1529  
`\author` . . . . . 1019
- B**
- `\bibcite` . . . . . 952, 1402, 1409, 1529, 1573, 1585  
`\bibliography` . . . . . 948  
`\bibliographystyle` . 944  
`\bodytitle` . . . . . 7, 758  
`\bodytitlemark` . . . . . 758
- C**
- `\c@bodytitle` . . . . . 760  
`\c@footnote` . . . . . 440  
`\c@l@author` . 1029, 1067  
`\c@l@getoptionname` .. 4  
`\c@l@gobbleoptarg` . . . . . 156, 160  
`\c@l@tempa` . . . . . 4  
`\c@l@title` . 1022, 1054  
`\c@laaddcontentsline` . . . . . 547, 1053, 1056, 1066, 1069, 1084  
`\c@laaddtocontents` . 547  
`\c@ladocument` . 205, 975  
`\c@laenddocument` . . . . . 341, 976  
`\c@lamaketitle` . . . . . 236, 401, 977  
`\c@laNAT@citex` . . . . . 1277, 1577

<code>\c@lbNAT@citexnum</code> .	803, 832, 844,	<code>\c@lnopubintoctrue</code> .	76
..... <a href="#">1203</a> , <a href="#">1588</a>	861, 871, 898, 907	<code>\c@lnothanksfalse</code> .	992
<code>\c@lbNAT@lbibitem</code> .	<code>\c@ll@chapsecii</code> ...	<code>\c@lnothankstrue</code> .	1002
..... <a href="#">1428</a> , <a href="#">1584</a>	.... <a href="#">773</a> , <a href="#">794</a> ,	<code>\c@lnotitlefalse</code> ..	47
<code>\c@lbNAT@make@cite@list</code>	805, 835, 847,	<code>\c@lnotitletrue</code> ...	73
..... <a href="#">1480</a> , <a href="#">1587</a>	864, 874, 901, 910	<code>\c@lnotocfalse</code> ....	35
<code>\c@lbNAT@parse</code> ....	<code>\c@llayoutsfalse</code> ..	<code>\c@lnotoctrue</code> .....	67
..... <a href="#">1412</a> , <a href="#">1581</a>	<code>\c@llayoutstrue</code> ...	<code>\c@loldsetuppapers</code> .	
<code>\c@lbNAT@set@cites</code> .	<code>\c@lloffnum</code> <a href="#">104</a> , 515, 540	..... <a href="#">1579</a> , <a href="#">1594</a>	
.. <a href="#">1550</a> , <a href="#">1590</a> , <a href="#">1591</a>	<code>\c@llotfnum</code> <a href="#">104</a> , 519, 541	<code>\c@lonebibfalse</code> ...	55
<code>\c@lbNAT@testdef</code> ..	<code>\c@lmainauxfile</code> ...	<code>\c@lonebibtrue</code> ..	77, 82
..... <a href="#">1466</a> , <a href="#">1586</a>	. 208, 217, 220, 352	<code>\c@lpackagesfalse</code> .	29
<code>\c@lbNAT@wroutr</code> ....	<code>\c@lmaintocfalse</code> ..	<code>\c@lpackagestrue</code> ..	64
..... <a href="#">1405</a> , <a href="#">1583</a>	<code>\c@lmaintoctrue</code> ...	<code>\c@lpagebref</code> .....	<a href="#">589</a>
<code>\c@lbNAT@biblecite</code> ...	<code>\c@lmtitle</code> .....	<code>\c@lprovide@environment</code>	
..... <a href="#">1446</a> , <a href="#">1585</a>	421, 439, 463, 1044	.....	<a href="#">108</a>
<code>\c@lbNAT@nocite</code> ....	<code>\c@lmtitleempty</code> 416,	<code>\c@lpubbody</code> .....	
..... <a href="#">1388</a> , <a href="#">1582</a>	424, 466, <a href="#">469</a> , 1088	.. <a href="#">1007</a> , <a href="#">1040</a> , <a href="#">1079</a>	
<code>\c@lbnewlabel</code> . <a href="#">589</a> , 941	<code>\c@lnamethm</code> .....	<code>\c@lpubfalse</code> .....	
<code>\c@lbnocite</code> .....	..... <a href="#">123</a>	. 97, 746, 915, 962	
... <a href="#">619</a> , <a href="#">953</a> , <a href="#">1668</a>	<code>\c@lNAT@citex@swatru</code>	<code>\c@lpuboptfalse</code> ...	
<code>\c@lbpagenumbering</code> .	.. <a href="#">1247</a> , <a href="#">1294</a> , <a href="#">1344</a>	.....	994, 1004
..... <a href="#">662</a> , 963	<code>\c@lNAT@citexnum@swatru</code>	<code>\c@lpubopttrue</code> ...	1003
<code>\c@lbpageref</code> .. 592, 943	.. <a href="#">1126</a> , 1175, 1220	<code>\c@lpubsfalse</code> .....	998
<code>\c@lbpagestyle</code> <a href="#">654</a> , 965	<code>\c@lNAT@setuplocal</code> .	<code>\c@lpubstrue</code> 1003, 1004	
<code>\c@lbps@plain</code> . 293, <a href="#">670</a>	.. 1580, 1596, 1600	<code>\c@lpubtoc</code> . <a href="#">1007</a> , <a href="#">1084</a>	
<code>\c@lbref</code> .....	<code>\c@lNAT@writelocalbib</code>	<code>\c@lpubtopfalse</code> ...	
..... <a href="#">589</a> , 942	..... <a href="#">1111</a> , 1210	.....	996, 1003
<code>\c@lbstarttoc</code> .....	<code>\c@lNAT@writelocalbibdate</code>	<code>\c@lpubtoptrue</code> ...	1004
..... <a href="#">503</a>	..... <a href="#">1111</a> , 1334	<code>\c@lpubtrue</code> ..	881, 1009
<code>\c@lbsuperoptfalse</code> 1610	<code>\c@lNAT@writemainbib</code>	<code>\c@lresetcounters</code> .	
<code>\c@lbsuperopttrue</code> 1612	..... <a href="#">1096</a> , 1164	.....	<a href="#">305</a> , <a href="#">309</a>
<code>\c@lbusepackage</code> <a href="#">182</a> , 926	<code>\c@lNAT@writemainbibdate</code>	<code>\c@ltempa</code> ....	509, 510
<code>\c@lbwritefile</code> .... <a href="#">530</a>	..... <a href="#">1096</a> , 1284	<code>\c@ltempb</code> . 509, 510,	
<code>\c@lclass</code> .....	<code>\c@lnoauthorfalse</code> . 45	513, 514, 517, 518	
3, 5, 59–62, 79, 85	<code>\c@lnoauthortrue</code> ..	<code>\c@ltextblock</code> .....	
<code>\c@lclassesfalse</code> .. 27	72	.... <a href="#">193</a> , 213, 263	
<code>\c@lclassestrue</code> ... 63	<code>\c@lnodatefalse</code> ...	<code>\c@lthechap</code> <a href="#">237</a> , 316, 378	
<code>\c@lclosestocs</code> . 375, <a href="#">538</a>	71	<code>\c@lthesec</code> <a href="#">237</a> , 315, 382	
<code>\c@lcombibfalse</code> ... 57	<code>\c@lnodatetrue</code> ....	<code>\c@lthrowenv</code> .....	<a href="#">108</a>
<code>\c@lcombibtrue</code> .... 78	<code>\c@lnoloffalse</code> ....	<code>\c@ltocauthorfalse</code> .	
<code>\c@lctr</code> .....	<code>\c@lnoloftrue</code> .....	. 95, 742, 915, 961	
99	<code>\c@lnolotfalse</code> ....	<code>\c@ltocauthortrue</code> .	854
<code>\c@lenddoca</code> <a href="#">321</a> , 354, 371	<code>\c@lnolottrue</code> .....	<code>\c@ltocfnum</code> <a href="#">104</a> , 511, 539	
<code>\c@lenva</code> .....	69	<code>\c@ltocgobble</code> .....	
..... <a href="#">108</a>	<code>\c@lnomaketitlefalse</code> 49	.... <a href="#">544</a> , 549,	
<code>\c@lenvb</code> .....	<code>\c@lnomaketitletrue</code> 74	559, 563, 566, 569	
..... <a href="#">108</a>	<code>\c@lnomauthorfalse</code> . 990	<code>\c@ltoctitlefalse</code> .	
<code>\c@lenvironment</code> ... <a href="#">108</a>	<code>\c@lnomauthortrue</code> 1001	. 93, 738, 915, 960	
<code>\c@lfoliosfalse</code> ... 33	<code>\c@lnomtitlefalse</code> . 988	<code>\c@ltoctitletrue</code> ..	823
<code>\c@lfoliostrue</code> .... 66	<code>\c@lnomtitletrue</code> . 1000		
<code>\c@lhaschapterfalse</code> 88	<code>\c@lnopubindocfalse</code> 51		
<code>\c@lhaschaptertrue</code> . 89	<code>\c@lnopubindoctrue</code> . 75		
<code>\c@ll@chapsecii</code> ....	<code>\c@lnopubintocfalse</code> 53		
.... <a href="#">773</a> , <a href="#">792</a> ,			

- `\c@lwritelocalbib` . 749, 1415, 1423,  
     . . . . . 595, 636, 641  
`\c@lwritemainbib` . . . . . 595, 639  
`\c@page` . . . . . 664, 665  
`\c@section` . . . . . 99  
`\c@tempa` . . . . . 514, 518  
`\c@tocdepth` . . . . . 789,  
     800, 829, 841,  
     860, 870, 897, 906  
`\catcode` 1133, 1481, 1502  
`\centering` . . . . . 893  
`\chapter` . . . . . 955  
`\chaptername` . . . . . 379  
`\citation` . . . . . 596,  
     603, 613, 622,  
     1097, 1104,  
     1112, 1119,  
     1380, 1391, 1678  
`\citeform` . . . . . 1647  
`\citenum` . . . . . 1682  
`\citenumfont` . . 1142,  
     1144, 1147,  
     1152, 1182, 1227  
`\citeonline` . . . . . 1683  
`\citepunct` . . 1640, 1647  
`\citeyear` . . 1534, 1553  
`\citeyearpar` 1534, 1553  
`\ClassWarningNoLine` . 6  
`\cleardoublepage` . . 917  
`\clearpage` . . . 344, 362  
`\closeout` . . . . 347,  
     348, 365, 539–541  
`\clubpenalty` . . . . . 197  
`\col@number` . . . . . 446  
`\colpage` . . . . . 99  
`\coltoc` . . . . . 386  
`\coltocauthor` . . . 7, 853  
`\coltoctitle` . . . . 7, 822  
`\columnsep` . . . . . 199  
`\columnwidth` . . . . .  
     . 196, 199, 200, 202  
`\combine` . . . . . 8  
`\contentsline` . 553, 736  
`\csname` . . . 112, 113,  
     128, 130, 131,  
     135, 137, 141,  
     152, 521, 522,  
     534, 590, 592,  
     601, 608, 664,
- `\fontsubfuzz` . . . . . 323  
`\footnote` . . . . . 405, 487  
`\footnoterule` . . . . . 404  
`\footnotesize` . . . . . 403  
`\frenchspacing` . . . . . 229
- D**
- `\deadcycles` . . . 357, 374  
`\DeclareRobustCommand`  
     . . . . . 1617,  
     1651, 1654, 1668  
`\define@key` . . . . . 4  
`\delimiter` . . . . . 1625  
`\do` . . . 12, 250, 253,  
     289, 292, 611,  
     620, 632, 1162,  
     1208, 1282,  
     1332, 1378,  
     1389, 1627, 1670  
`\document` . . . . . 927, 975
- E**
- `\edef` 18, 21, 164, 612,  
     621, 634, 1142,  
     1144, 1163,  
     1209, 1283,  
     1333, 1379,  
     1390, 1483,  
     1489, 1490,  
     1494, 1498,  
     1504, 1510,  
     1511, 1515, 1519  
`\emptyAtBeginDocument`  
     . . . . . 11, 973  
`\endcsname` 112, 113,  
     128, 130, 131,  
     135, 137, 141,  
     152, 521, 522,  
     534, 590, 592,  
     601, 608, 664,  
     749, 1415, 1423,  
     1467, 1474, 1638  
`\enddocument` . . 928, 976  
`\endinput` . . . . . 389  
 environments:  
     **papers** . . . . . 6, 917  
     **tocindent** . . . . . 815  
`\erasetitling` 8, 386, 915
- F**
- `\font@submax` . . 323, 325
- G**
- `\g@addto@macro` . . . . .  
     . . . 235, 1681–1683  
`\G@refundefinedtrue`  
     . 581, 598, 605,  
     614, 623, 1640, 1671  
`\glb@currsize` . 224, 275  
`\glossary` . . . . . 545
- H**
- `\hangafter` . . . . . 816  
`\hb@xt@` . . . . . 443, 784  
`\Huge` . . . . . 765  
`\hyper@natanchorend`  
     . . . . . 1434, 1443  
`\hyper@natanchorstart`  
     . . . . . 1433, 1442  
`\hyper@natlinkbreak`  
     . . 1264, 1311, 1361  
`\hyper@natlinkend` .  
     . . . 1131, 1152,  
     1182, 1186,  
     1190, 1194,  
     1227, 1231,  
     1235, 1239,  
     1251, 1256,  
     1260, 1265,  
     1269, 1271,  
     1273, 1299,  
     1304, 1307,  
     1313, 1316,  
     1318, 1320,  
     1349, 1354,  
     1357, 1363,  
     1366, 1368, 1370  
`\hyper@natlinkstart`  
     . . . 1128, 1151,  
     1181, 1185,  
     1189, 1193,  
     1226, 1230,  
     1234, 1238,  
     1250, 1255,  
     1259, 1262,  
     1268, 1270,

- 1272, 1298,  
1303, 1306,  
1309, 1315,  
1317, 1319,  
1348, 1353,  
1356, 1359,  
1365, 1367, 1369
- I**
- `\if` .... 1180, 1200,  
1225, 1244,  
1249, 1297,  
1311, 1321,  
1324, 1325,  
1347, 1361,  
1371, 1374,  
1375, 1381,  
1392, 1429, 1438
- `\if@compatibility` . 173
- `\if@filesw` 219, 270,  
329, 346, 364,  
508, 596, 603,  
613, 622, 1097,  
1104, 1112,  
1119, 1380,  
1391, 1399,  
1406, 1525, 1677
- `\if@titlepage` .. 91, 401
- `\if@twocolumn` . 198, 445
- `\if@twoside` ... 670, 716
- `\if@lbrsuperopt` ...  
..... 1609, 1650
- `\if@lclasses` .. 26, 167
- `\if@lcombib` .....  
56, 81, 628, 635,  
647, 945, 1204,  
1328, 1457, 1595
- `\if@lfolios` ... 32,  
295, 662, 677, 699
- `\if@lhaschapter` ..  
..... 87, 298,  
376, 761, 787,  
827, 858, 895, 954
- `\if@llayouts` .. 30, 262
- `\if@lmaintoc` .....  
..... 40, 556, 938
- `\if@lnoauthor` . 44, 493
- `\if@lnodate` ... 42, 496
- `\if@lnolof` .... 36, 936
- `\if@lnolot` .... 38, 937
- `\ifc@lnomaketitle` .  
..... 48, 934
- `\ifc@lnomauthor` ...  
..... 987, 1063
- `\ifc@lnomtitle` 987, 1050
- `\ifc@lnopubindoc` ..  
50, 889, 1039, 1078
- `\ifc@lnopubintoc` ..  
..... 52, 882, 1083
- `\ifc@lnothanks` ....  
.. 987, 1052, 1065
- `\ifc@lnotitle` .. 46, 490
- `\ifc@lnotoc` .... 34, 935
- `\ifc@lonebib` 54, 638,  
645, 947, 1456, 1598
- `\ifc@lpackages` ....  
..... 28, 182, 926
- `\ifc@lpub` .....  
92, 744, 1037, 1076
- `\ifc@lpubopt` . 987, 1077
- `\ifc@lpubs` .....  
.. 987, 1007, 1082
- `\ifc@lpubtop` . 987, 1038
- `\ifc@ltocauthor` ...  
..... 94, 740, 1062
- `\ifc@ltoctitle` ....  
..... 92, 735, 1049
- `\ifcat` .. 1134, 1136,  
1486, 1507, 1644
- `\ifciteindex` 1418, 1426
- `\IfFileExists` ..... 532
- `\ifNAT@full` ... 1171,  
1217, 1291, 1341
- `\ifNAT@longnames` ..  
..... 1167,  
1213, 1287, 1337
- `\ifNAT@numbers` ....  
..... 1531, 1550
- `\ifNAT@stdbst` .... 1525
- `\ifNAT@super` 1532, 1551
- `\ifNAT@swa` ... 1174,  
1200, 1219,  
1244, 1293,  
1324, 1343,  
1374, 1468, 1475
- `\ignorespaces` .....  
254, 307, 1403, 1410
- `\immediate` ... 220,  
221, 271, 272,  
347, 348, 365,
- 511, 515, 519,  
522, 534, 539–  
541, 596, 603,  
613, 622, 1097,  
1104, 1112,  
1119, 1380,  
1391, 1401,  
1408, 1525, 1677
- `\import` ..... 6, 734
- `\importauthorfont` .  
..... 7, 475, 494
- `\importdatefont` ...  
..... 7, 475, 497
- `\importtitlefont` ..  
..... 7, 475, 491
- `\include` ..... 967
- `\index` ..... 545
- `\item` ..... 1433, 1442
- `\itshape` ..... 478, 819
- L**
- `\l@bodytitle` ..... 787
- `\l@coltocauthor` ... 853
- `\l@coltoctitle` .... 822
- `\l@published` ..... 880
- `\label` ..... 545, 939
- `\LARGE` ..... 392, 475
- `\Large` ..... 770, 958
- `\large` 395, 398, 478, 481
- `\lastskip` ..... 1661
- `\leftskip` .... 782, 783
- `\lineskip` .... 395, 478
- `\linewidth` ..... 202
- `\listoffigures` .... 936
- `\listoftables` ..... 937
- `\LoadClass` .....  
.. 85, 188, 189, 929
- M**
- `\mainauthorfont` ...  
.. 6, 392, 409, 433
- `\maindatefont` .....  
.. 6, 392, 410, 434
- `\mainjobname` .. 207, 388
- `\maintitlefont` ....  
.. 6, 392, 408, 432
- `\makeatletter` .....  
.. 169, 178, 215,  
266, 352, 369, 505
- `\makeatother` ..... 306

<code>\maketitle</code> .. 6, 236,	<code>\NAT@citexnum</code> .....	1165, 1171,
930, 931, 934, 977	... 1158, 1538,	1172, 1178,
<code>\maxdepth</code> .... 244, 283	1557, 1576, 1588	1207, 1211,
<code>\mbox</code> . 597, 604, 1142,	<code>\NAT@cmt</code> .....	1217, 1218,
1144, 1147,	1245, 1324, 1374	1223, 1251,
1151, 1536, 1555	<code>\NAT@ctype</code> 1127, 1129,	1253, 1263,
<code>\MessageBreak</code> ... 7,	1177, 1186,	1269, 1281,
8, 324, 1470, 1477	1190, 1200,	1285, 1291,
	1222, 1231,	1292, 1299,
	1235, 1244,	1301, 1310,
	1248, 1296, 1346	1316, 1331,
	<code>\NAT@date</code> 1109, 1124,	1335, 1341,
<code>\NAT@@cite@list</code> ...	1249, 1251,	1342, 1349,
..... 1493, 1514	1259, 1265,	1351, 1360, 1366
<code>\NAT@@close</code> ... 1183,	1271, 1297,	<code>\NAT@nmfmt</code> 1251, 1263,
1201, 1228,	1306, 1313,	1269, 1299,
1245, 1322,	1318, 1321,	1310, 1316,
1325, 1372, 1375	1325, 1347,	1349, 1360, 1366
<code>\NAT@@open</code> ... 1179,	1356, 1363,	<code>\NAT@nonsort@list</code> .
1224, 1311, 1361	1368, 1371,	..... 1498, 1519
<code>\NAT@alias</code> ... 1130,	1375, 1417, 1425	<code>\NAT@num</code> .....
1194, 1239,	<code>\NAT@exlab</code> .....	1134,
1273, 1320, 1370	.. 1255, 1303, 1353	1135, 1142,
<code>\NAT@all@names</code> 1168,	<code>\NAT@ifcmd</code> . 1435, 1444	1144, 1147,
1171, 1214,	<code>\NAT@index</code> . 1418, 1426	1152, 1161,
1217, 1288,	<code>\NAT@last@nm</code> .....	1165, 1182,
1291, 1338, 1341	... 1165, 1178,	1207, 1211,
<code>\NAT@aysep</code> .....	1211, 1223,	1227, 1432,
1264	1253, 1285,	1433, 1441,
<code>\NAT@biblabel</code> 1545, 1564	1301, 1335, 1351	1442, 1484,
<code>\NAT@biblabelnum</code> ..	<code>\NAT@last@num</code> . 1136,	1486, 1487,
..... 1539, 1558	1137, 1165, 1211	1489, 1505,
<code>\NAT@bibsetnum</code> ....	<code>\NAT@last@yr</code> .. 1141,	1507, 1508, 1510
..... 1540, 1559	1142, 1144,	<code>\NAT@num@celt</code> 1494, 1515
<code>\NAT@bibsetup</code> 1546, 1565	1147, 1148,	<code>\NAT@num@list</code> . 1489,
<code>\NAT@celt</code> .. 1495, 1516	1161, 1199,	1494, 1495,
<code>\NAT@cite</code> .. 1543, 1562	1207, 1243,	1510, 1515, 1516
<code>\NAT@cite@list</code> 1162,	1254, 1285,	<code>\NAT@numberstrue</code> . 1526
1208, 1282,	1302, 1335, 1352	<code>\NAT@parse</code> ... 1166,
1332, 1490,	<code>\NAT@make@cite@list</code>	1212, 1286,
1493, 1511, 1514	..... 1575, 1587	1336, 1432,
<code>\NAT@citemultiple</code> .	<code>\NAT@mbox</code> .... 1180,	1441, 1485,
.. 1447, 1452, 1460	1225, 1533,	1506, 1569, 1581
<code>\NAT@citenum</code> 1537, 1556	1536, 1552, 1555	<code>\NAT@parse@date</code> ...
<code>\NAT@citesuper</code> ....	<code>\NAT@name</code> .... 1168,	..... 1417, 1425
..... 1532, 1551	1172, 1214,	<code>\NAT@sep</code> .....
<code>\NAT@citeundefined</code> .	1218, 1288,	1155,
..... 1100,	1292, 1338, 1342	1183, 1187,
1106, 1115,	<code>\NAT@nm</code> .....	1191, 1195,
1121, 1383, 1394	1135,	1228, 1232,
<code>\NAT@citex</code> 1277, 1544,	1140, 1161,	1236, 1240,
1563, 1577, 1589		1274, 1321,

- 1322, 1371, 1372  
 \NAT@set@cites ... 1590  
 \NAT@sort .... 1132,  
     1199, 1243, 1480  
 \NAT@sort@cites 1159,  
     1205, 1279, 1329  
 \NAT@space 1155, 1178,  
     1223, 1535,  
     1537, 1554, 1556  
 \NAT@split . 1416, 1424  
 \NAT@swafalse 1468, 1475  
 \NAT@swatruel ..... 1529  
 \NAT@temp .... 1415,  
     1416, 1423,  
     1424, 1467,  
     1468, 1474, 1475  
 \NAT@test 1129, 1179,  
     1186, 1190,  
     1224, 1231, 1235  
 \NAT@testdef .....  
     .. 1529, 1574, 1586  
 \NAT@wroul .....  
     .. 1398, 1571, 1583  
 \NAT@year 1254, 1281,  
     1285, 1302,  
     1331, 1335, 1352  
 \NAT@yrsep 1178, 1223,  
     1253, 1301, 1351  
 \natexlab .... 1541,  
     1547, 1560, 1566  
 \new@environment .. 114  
 \newif ..... 26,  
     28, 30, 32, 34,  
     36, 38, 40, 42,  
     44, 46, 48, 50,  
     52, 54, 56, 87,  
     91, 92, 94, 96,  
     987, 989, 991,  
     993, 995, 997, 1609  
 \newlabel .... 577, 941  
 \newwrite . 104–106, 521  
 \nfss@text ..... 582  
 \nocite ... 617, 953,  
     1377, 1570, 1582  
 \noexpand .. 22, 131,  
     164, 188, 189,  
     253, 292, 1142,  
     1144, 1400, 1407  
 \nonfrenchspacing . 231  
 \normalfont .....  
     . 441, 444, 765,  
     770, 820, 893, 958  
 \normalsfcodes ....  
     .... 227, 229, 231  
 \normalsize ... 225, 276  
  
**O**  
 \oc@movep ..... 1666  
 \oc@verbo .. 1642, 1672  
 \openout .. 220, 271,  
     511, 515, 519, 522  
  
**P**  
 \PackageError .....  
     .. 984, 1094, 1608  
 \PackageWarning 1100,  
     1107, 1115,  
     1122, 1383, 1394  
 \PackageWarningNoLine  
     ... 1448, 1453,  
     1461, 1469, 1476  
 \pagenumbering .... 963  
 \pageref ..... 943  
 papers (environment)  
     ..... 6, 917  
 \parindent ... 442,  
     777, 890, 1040, 1079  
 \PassOptionsToClass  
     ..... 79, 1613  
 \postimportauthor .  
     ..... 7, 475, 494  
 \postimportdate ...  
     ..... 7, 475, 497  
 \postimporttitle ..  
     ..... 7, 475, 491  
 \postmainauthor ...  
     .. 6, 392, 409, 433  
 \postmaindate .....  
     .. 6, 392, 410, 434  
 \postmaintitle .....  
     .. 6, 392, 408, 432  
 \process@table 223, 274  
 \protected@write ..  
     .... 548, 558,  
     562, 565, 568, 576  
 \protected@xdef ...  
     ..... 1022, 1029  
 \providecommand ...  
     . 146, 151, 162, 170  
 \providecounter 10, 151  
 \provideenvironment  
     ..... 10, 108, 171  
 \providelength . 10, 146  
 \ps@combine ..... 716  
 \ps@plain . 293, 722, 730  
 \pubfont .....  
     . 8, 880, 1040, 1079  
 \published .....  
     . 7, 386, 880, 1007  
  
**R**  
 \ref ..... 942  
 \RequirePackage . 2, 173  
 \RequirePackageWithOptions  
     ..... 1095, 1615  
  
**S**  
 \savec@lpublished .  
     .... 745, 884, 886  
 \savec@ltocauthor .  
     ..... 741, 855  
 \savec@ltoctitle ..  
     ..... 737, 824  
 \setkeys ..... 22  
 \setuppapers .....  
     919, 924, 1579,  
     1593, 1681–1683  
 \small ..... 403  
 \spacefactor 1662, 1664  
 \stepcounter ..... 235  
 \string 550, 560, 564,  
     567, 570, 577,  
     596, 603, 613,  
     622, 1097, 1104,  
     1112, 1119,  
     1380, 1391,  
     1402, 1409,  
     1526, 1675, 1678  
  
**T**  
 \tableofcontents .. 935  
 \takedownpapers 921, 970  
 \textheight ... 194, 195  
 \textsuperscript ..  
     ..... 1533, 1552  
 \textwidth ..... 196  
 \thanks ... 405, 487,  
     1021, 1027, 1048  
 \thebodytitle ..... 760



- `\thechapter` 239, 316, 378  
`\thecolpage` .....  
     . 100, 553, 577,  
     583, 600, 607,  
     681, 682, 688,  
     689, 703, 710, 737  
`\thefootnote` ..... 440  
`\thepage` 664, 674, 675,  
     681, 682, 696,  
     703, 720, 721,  
     728, 1101, 1108,  
     1116, 1123, 1641  
`\thesection` 238, 315, 382  
`\thispagestyle` .... 456  
`\title` ..... 1019  
`\tocauthorfont` ....  
     .. 8, 818, 863, 873  
`\tocauthorindent` ..  
     .. 8, 810, 862, 872  
`\tocfname` .... 506,  
     507, 511, 515,
- 519, 522, 531, 532  
`\tocindent` (environ-  
     ment) ..... 815  
`\tocpubfont` .....  
     .. 8, 818, 900, 909  
`\tocpubindent` .....  
     .. 8, 810, 899, 908  
`\toctitlefont` .....  
     .. 8, 818, 834, 846  
`\toctitleindent` ...  
     .. 8, 810, 833, 845  
`\toctocindent` 8, 564, 810  
`\toks@` ..... 163, 164  
`\topskip` ..... 243, 282  
`\twocolumn` ..... 449
- U**
- `\unskip` . 1028, 1258,  
     1305, 1355,  
     1533, 1552, 1661
- V**
- `\value` .... 299, 302,  
     377, 381, 384, 964  
`\vsize` ..... 195
- W**
- `\write` .... 221, 272,  
     534, 596, 603,  
     613, 622, 1097,  
     1104, 1112,  
     1119, 1380,  
     1391, 1402,  
     1409, 1525, 1677
- X**
- `\xdef` .... 130, 137,  
     1415, 1423, 1676
- Z**
- `\zeroextracounters` .  
     ..... 10, 317, 319