

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

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Abstract

The `combine` class can be used to assemble a group of individual L^AT_EX 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.

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[†]Dick Nickalls (`dicknickalls@compuserve.com`) provided several requirements and suggestions. He also very helpfully tested earlier experimental versions.

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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 \LaTeX `DOCSTRIP` utility which enables the automatic extraction of the \LaTeX 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 \LaTeX 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` class¹ definitions throughout the entire document.

Note that if you use this option there are likely to be L^AT_EX 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^AT_EX errors and the printed results may be unpredictable. If this happens, try hitting ‘q’ to put L^AT_EX 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.

¹Whatever 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^AT_EX 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^AT_EX 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^AT_EX 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 incompatible².

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 incompatible³.

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.

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

³Discovered 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^AT_EX 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_EX itself and others by the L^AT_EX 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^AT_EX 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^AT_EX 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^AT_EX 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^AT_EX 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^AT_EX 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^AT_EX 2_ε and the `keyval` package.

```

1 (*usc)
2 \NeedsTeXFormat{LaTeX2e}
3 \ProvidesClass{combine}[2003/11/09 v0.52 collection of documents]
4 \RequirePackage{keyval}
5

```

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

```

6 \newcommand{\c@lclass}{article}

```

`\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.

`\c@l@getoptionname`

```

7 \define@key{COLCLASS}{colclass}[article]%
8     {\renewcommand{\c@lclass}{#1}
9     \ClassWarningNoLine{combine}
10         {Expect warnings like:\MessageBreak
11         \space\space LaTeX Warning: Unused global option(s):\MessageBreak
12         \space\space\space\space [colclass=#1]}}
13 \let\c@l@tempa@empty
14 \def\c@l@getoptionname#1=#2\@nil{#1}
15 \@for\CurrentOption:=\@classoptionslist\do{%
16     \ifundefined{%
17         KV@COLCLASS@\expandafter\c@l@getoptionname\CurrentOption=\@nil
18     }%
19     {% other options
20     }{%
21     \edef\c@l@tempa{\c@l@tempa,\CurrentOption,}%
22     }%
23 }%
24 \edef\c@l@tempa{%
25     \noexpand\setkeys{COLCLASS}{\c@l@tempa}%
26 }
27 \c@l@tempa
28

```

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

```

\ifc@lclasses
    29 \newif\ifc@lclasses
    30 \c@lclassesfalse

\ifc@lpackages
    31 \newif\ifc@lpackages
    32 \c@lpackagesfalse

\ifc@llayouts
    33 \newif\ifc@llayouts
    34 \c@llayoutsfalse

\ifc@lfolios
    35 \newif\ifc@lfolios
    36 \c@lfoliosfalse

\ifc@lnotoc
    37 \newif\ifc@lnotoc
    38 \c@lnotocfalse

\ifc@lnolof
    39 \newif\ifc@lnolof
    40 \c@lnoloffalse

\ifc@lnolot
    41 \newif\ifc@lnolot
    42 \c@lnolotfalse

\ifc@lmaintoc
    43 \newif\ifc@lmaintoc
    44 \c@lmaintocfalse

\ifc@lnodate
    45 \newif\ifc@lnodate
    46 \c@lnodatetrue

\ifc@lnoauthor
    47 \newif\ifc@lnoauthor
    48 \c@lnoauthorfalse

\ifc@lnotitle
    49 \newif\ifc@lnotitle
    50 \c@lnotitlefalse

\ifc@lnomaketitle
    51 \newif\ifc@lnomaketitle
    52 \c@lnomaketitlefalse

```

```

\ifc@lnopubindoc
    53 \newif\ifc@lnopubindoc
    54 \c@lnopubindocfalse

\ifc@lnopubintoc
    55 \newif\ifc@lnopubintoc
    56 \c@lnopubintocfalse

\ifc@lonebib
    57 \newif\ifc@lonebib
    58 \c@lonebibfalse

\ifc@lcombib
    59 \newif\ifc@lcombib
    60 \c@lcombibfalse

    Now declare and process the options.

    61
    62 \DeclareOption{book}{\def\c@lclass{book}}
    63 \DeclareOption{report}{\def\c@lclass{report}}
    64 \DeclareOption{letter}{\def\c@lclass{letter}}
    65 \DeclareOption{memoir}{\def\c@lclass{memoir}}
    66 \DeclareOption{classes}{\c@lclassetrue}
    67 \DeclareOption{packages}{\c@lpackagestrue}
    68 \DeclareOption{layouts}{\c@llayoutstrue}
    69 \DeclareOption{folios}{\c@lfoliostrue}
    70 \DeclareOption{notoc}{\c@lnotoctrue}
    71 \DeclareOption{nofol}{\c@lnoftrue}
    72 \DeclareOption{notlot}{\c@lnolottrue}
    73 \DeclareOption{maintoc}{\c@lmaintoctrue}
    74 \DeclareOption{date}{\c@lnotdatefalse}
    75 \DeclareOption{noauthor}{\c@lnoauthortrue}
    76 \DeclareOption{notitle}{\c@lnottitletrue}
    77 \DeclareOption{nomaketitle}{\c@lnomaketitletrue}
    78 \DeclareOption{nopubindoc}{\c@lnopubindoctrue}
    79 \DeclareOption{nopubintoc}{\c@lnopubintoctrue}
    80 \DeclareOption{onebib}{\c@lonebibtrue}
    81 \DeclareOption{combinedbib}{\c@lcombibtrue}
    82 \DeclareOption*{\PassOptionsToClass{\CurrentOption}{\c@lclass}}
    83 \ProcessOptions\relax
    84 \ifc@lcombib
    85 \c@lonebibtrue
    86 \fi
    87

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

    88 \LoadClass{\c@lclass}
    89

```

```

\ifc@lhaschapter \ifc@lhaschapter is TRUE if the loaded class has chapters.
90 \newif\ifc@lhaschapter
91 \c@lhaschapterfalse
92 \ifundefined{chapter}{\c@lhaschaptertrue}
93

\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.
94 \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 95 \newif\ifc@ltoctitle
96 \c@ltoctitlefalse
97 \newif\ifc@ltocauthor
98 \c@ltocauthorfalse
99 \newif\ifc@lpub
100 \c@lpubfalse
101

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.
102 \newcounter{colpage} \setcounter{colpage}{1}
103 \renewcommand{\thecolpage}{\arabic{colpage}}
104 \newcounter{c@lctr}
105 \ifundefined{c@section}{\newcounter{section}}{}
106

\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).
107 \newwrite\c@ltoctfnum
108 \newwrite\c@lloffnum
109 \newwrite\c@lloctfnum
110

```

9 Kernel modifications (and potential additions)

Much of the class code consists of new versions of L^AT_EX 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^AT_EX 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.

```

111 \def\provideenvironment{%
112   \@star@or@long\c@lprovide@environment}
113 \def\c@lprovide@environment#1{%
114   \ifundefined{#1}{%
115     \expandafter\let\csname#1\endcsname\relax
116     \expandafter\let\csname end#1\endcsname\relax
117     \new@environment{#1}{\c@lenvironment{#1}}
118   }
119 \def\c@lenvironment#1{%
120   \@testopt{\c@lenva#1}0}
121 \def\c@lenva#1[#2]{%
122   \ifnextchar [ {\c@lenvb#1[#2]}{\c@lthrowenv{#1}{[#2]}}
123 \def\c@lenvb#1[#2][#3]{\c@lthrowenv{#1}{[#2][#3]}}
124 \def\c@lthrowenv#1#2#3#4{}
125

```

`\c@lnamethm` As pointed out by Hendri Hondrop⁴ `\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).

```

126 \ifundefined{newtheorem}{%
127   \newcommand{\c@lnamethm}[3]{%
128     \@namedef{#1}{\thm{#2}{#3}}%
129     \@namedef{end#1}{\endtheorem}}
130 \def\xnthm#1#2[#3]{%
131   \expandafter\ifdefinable\csname #1\endcsname
132     {\@definecounter{#1}\@newctr{#1}[#3]}%
133     \expandafter\xdef\csname the#1\endcsname{%
134       \expandafter\noexpand\csname the#3\endcsname \@thmcountersep
135         \@thmcounter{#1}}%
136     \c@lnamethm{#1}{#1}{#2}}
137 \def@ynthm#1#2{%
138   \expandafter\ifdefinable\csname #1\endcsname
139     {\@definecounter{#1}}%
140     \expandafter\xdef\csname the#1\endcsname{\@thmcounter{#1}}%
141     \c@lnamethm{#1}{#1}{#2}}
142 \def@othm#1[#2]#3{%
143   \ifundefined{c@#2}{\@nocounterr{#2}}%
144     {\expandafter\ifdefinable\csname #1\endcsname
145       {\@namedef{the#1}{\@nameuse{the#2}}
146       \c@lnamethm{#1}{#2}{#3}}}}
147 }

```

⁴Email from `hendri@cs.utwente.nl` on 16 May, 2000.

148

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

```
149 \providecommand{\providelength}[1]{%
150   \ifx #1\undefined
151     \newlength{#1}
152   \fi
153 }
```

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

```
154 \providecommand{\providecounter}[1]{%
155   \expandafter\ifx \csname c@#1\endcsname \undefined
156     {\@definecounter{#1}}%
157   \@ifnextchar[{\@newctr{#1}}{-}
158   \else
159     \@ifnextchar[{\c@l@gobbleoptarg}{}
160   \fi
161 }
162
```

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

```
163 \def\c@l@gobbleoptarg[#1]{}
164
```

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

```
165 \providecommand{\appendiargdef}[2]{\begingroup
166   \toks@\expandafter{#1{##1}#2}%
167   \edef\@bsx{\endgroup \def\noexpand#1###1{\the\toks@}}%
168   \@bsx}
169
```

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`.

```
170 \ifc@l@classes
171   \newcommand\c@l@bdocumentclass{%
172     \makeatletter                               %% added
173     \let\newcommand\providecommand             %% added
174     \let\newenvironment\provideenvironment    %% added
175   %% \let\documentclass\@twoclasseserror
176   %% \if@compatibility\else\let\usepackage\RequirePackage\fi
177   \@fileswithoptions\@clsextension
178 }
179 \else
```

```

180 \newcommand{\c@lbdocumentclass}[2][\@empty]{%
181   \makeatletter
182 }
183 \fi
184

```

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

```

185 \ifc@lpackages\else
186 \newcommand{\c@lbusepackage}[2][\@empty]{%
187 \fi
188

```

`\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`.⁵

```

189 \newcommand{\c@lbLoadClass}{%
190   \ifx\@current\@pkgextension
191     \@latex@error{\noexpand\LoadClass in package file}%
192     {You may only use \noexpand\LoadClass in a class file.}%
193   \fi
194   \@fileswithoptions\@clsextension}
195

```

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`.

```

196 \newcommand{\c@ltextblock}{%
197   \@colht\textheight
198   \@colroom\textheight \vsize\textheight
199   \@columnwidth\textwidth
200   \@clubpenalty\clubpenalty
201   \if@twocolumn
202     \advance\columnwidth -\columnsep
203     \divide\columnwidth\tw@ \hsize\columnwidth \@firstcolumntrue
204   \fi
205   \hsize\columnwidth \linewidth\hsize
206 }
207

```

`\c@ladocument`

```

\c@lbdocument 208 \newcommand{\c@ladocument}{%
209   \endgroup
210   \let\mainjobname\jobname           %% added

```

⁵Problem reported by Hans Fredrik Nordhaug hansfn@mi.uib.no on 2001/08/24.

```

211 \def\c@lmainauxfile{\jobname.aux} %% added
212 \ifx\@unusedoptionlist\@empty\else
213   \@latex@warning@no@line{Unused global option(s):^^J%
214     \spaces[\@unusedoptionlist]}%
215 \fi
216 \c@ltextblock %% a replacement
217 \begingroup\@floatplacement\@dblfloatplacement
218   \makeatletter\let\@writefile\@gobbletwo
219   \global \let \@multiplelabels \relax
220   \input{\c@lmainauxfile}% %% changed
221 \endgroup
222 \if@filesw
223   \immediate\openout\@mainaux\c@lmainauxfile %% changed
224   \immediate\write\@mainaux{\relax}%
225 \fi
226 \process@table
227 \let\glb@currsizel\@empty
228 \normalsize
229 \everypar{}%
230 \ifx\normalsfcodes\@empty
231   \ifnum\sfcode'\.=\@m
232     \let\normalsfcodes\frenchspacing
233   \else
234     \let\normalsfcodes\nonfrenchspacing
235   \fi
236 \fi
237 \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.

```

238 \g@addto@macro{\@outputpage}{\stepcounter{colpage}} %% added
239 \let\maketitle\@clamaketitle %% added

```

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

```

240 \ifundefined{c@chapter}% %% added
241   {\ifundefined{c@section}{\let\c@lthesec\thesection}}%
242   {\let\c@lthechap\thechapter}

243 \let \@refundefined \relax
244 \let\AtBeginDocument\@firstofone
245 \@begindocumenthook

```

```

246 \ifdim\topskip<1sp\global\topskip 1sp\relax\fi
247 \global\@maxdepth\maxdepth
248 %% \global\let\@begindocumenthook\@undefined
249 \ifx\@listfiles\@undefined
250 \global\let\@filelist\relax
251 \global\let\@addtofilelist\@gobble
252 \fi
253 %% \gdef\do##1{\global\let ##1\@notprerr}%
254 %% \@preamblecmds
255 \global\let \@nodocument \relax
256 \global\let\do\noexpand
257 \ignorespaces}
258

```

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`.

```

259 \newcommand{\c@lbdocument}{%
260 %% \endgroup
261 %% \ifx\@unusedoptionlist\@empty\else
262 %% \@latex@warning@no@line{Unused global option(s):^^J%
263 %% \@spaces[\@unusedoptionlist]}%
264 %% \fi
265 \ifc@l@layouts %% layouts option
266 \c@l@textblock
267 \fi
268 \begingroup\@floatplacement\@dblfloatplacement
269 \makeatletter \let\@writefile\@gobbletwo
270 %% \global \let \@multiplelabels \relax
271 \input{\c@l@auxfile}%
272 \endgroup
273 \if@filesw
274 \immediate\openout\@partaux\c@l@auxfile
275 \immediate\write\@partaux{\relax}%
276 \fi
277 \process@table
278 \let\glb@currsize\@empty
279 \normalsize
280 \everypar{}%
281 \@noskipsecfalse
282 %% \let \@refundefined \relax
283 \let\AtBeginDocument\@firstofone
284 \@begindocumenthook
285 \ifdim\topskip<1sp\global\topskip 1sp\relax\fi
286 \global\@maxdepth\maxdepth
287 %% \global\let\@begindocumenthook\@undefined
288 \ifx\@listfiles\@undefined

```

```

289 \global\let\@filelist\relax
290 \global\let\@addtofilelist\@gobble
291 \fi
292 %% \gdef\do##1{\global\let ##1\@notprerr}%
293 %% \@preamblecmds
294 \global\let \@nodocument \relax
295 \global\let\do\noexpand
296 \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 imports⁶.

```

297 %% \pagestyle{plain}
298 \ifc@folios %% folios option initialises page number
299 \setcounter{page}{1}
300 \fi
301 \ifc@haschapter %% set chapter/section number
302 \setcounter{c@lctr}{\value{chapter}}
303 \setcounter{chapter}{0}
304 \else
305 \setcounter{c@lctr}{\value{section}}
306 \setcounter{section}{0}
307 \fi
308 \c@lresetcounters %% added
309 \makeatother %% added
310 \ignorespaces}
311

```

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

```

312 \newcommand{\c@lresetcounters}{%
313 \ifundefined{c@figure}{\setcounter{figure}{0}}
314 \ifundefined{c@table}{\setcounter{table}{0}}
315 \ifundefined{c@equation}{\setcounter{equation}{0}}
316 \ifundefined{c@footnote}{\setcounter{footnote}{0}}
317 \ifundefined{c@chapter}%
318 {\ifundefined{c@section}{\renewcommand{\thesection}{\c@lthesec}}}%
319 {\renewcommand{\thechapter}{\c@lthechap}}
320 \zeroextracounters
321 }

```

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

```

322 \newcommand{\zeroextracounters}{}
323

```

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.

⁶Problem 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`.

```

324 \newcommand{\c@lenddoca}{%
325   \@dofilelist
326   \ifdim \font@submax >\fontsubfuzz\relax
327     \@font@warning{Size substitutions with differences\MessageBreak
328                   up to \font@submax\space have occurred.\@gobbletwo}%
329   \fi
330   \@defaultsubs
331 %%   \@refundefined
332   \if@filesw
333     \ifx \@multiplelabels \relax
334       \if@tempwa
335         \@latex@warning@no@line{Label(s) may have changed.
336                               Rerun to get cross-references right}%
337       \fi
338     \else
339       \@multiplelabels
340     \fi
341   \fi
342 }
343

```

`\c@laenddocument`

`\c@lbenddocument`

```

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

```

```

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

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

379     \ifc@lhaschapter          %% reset chap/sec and page numbering
380     \setcounter{chapter}{\value{c@lctr}}
381     \gdef\thechapter{\c@lthechap}
382     \gdef\@chapapp{\chaptername}
383     \else
384     \setcounter{section}{\value{c@lctr}}
385     \gdef\thesection{\c@lthesec}
386     \fi
387     \setcounter{page}{\value{colpage}}
388     \pagestyle{\c@lastyle}
389     \erasetitling             %% no \coltoc... or \published commands defined
390 %%     \let\@auxout\@mainaux
391     \gdef\jobname{\mainjobname} %% swap back to main document file name
392     \endinput                 %% ignore any text after \end{document}
393 }
394

```

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 commands are provided that can be changed to reconfigure the appearance resulting from \maketitle. These are defined initially to approximately mimic the normal L^AT_EX style.

```

\maintitlefont 395 \newcommand{\maintitlefont}{\begin{center}\LARGE}
\postmaintitle 396 \newcommand{\postmaintitle}{\par\end{center}\vskip 0.5em}
\mainauthorfont 397 \newcommand{\mainauthorfont}{\begin{center}
\large \lineskip .5em%
\begin{tabular}[t]{c}}
\postmainauthor 400 \newcommand{\postmainauthor}{\end{tabular}\par\end{center}}
\maindatefont 401 \newcommand{\maindatefont}{\begin{center}\large}
\postmaindate 402 \newcommand{\postmaindate}{\par\end{center}}
403

```

\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.

```

404 \if@titlepage
405   \newcommand{\c@lamaketitle}{\begin{titlepage}%
406     \let\footnotesize\small
407     \let\footnoterule\relax
408     \let \footnote \thanks
409     \null\vfil
410     \vskip 60\p@
411     {\maintitlefont \@title \postmaintitle}
412     {\mainauthorfont \@author \postmainauthor}
413     {\maindatefont \@date \postmaindate}
414     \par
415     \@thanks
416     \vfil\null
417     \end{titlepage}%
418     \setcounter{footnote}{0}%
419     \c@lmtitleempty           %% change here
420   } % end titlepage defs
421 \else
422   \newcommand{\c@lamaketitle}{\par
423     \begingroup
424       \c@lmtitle           %% change here
425     \endgroup
426     \setcounter{footnote}{0}%
427     \c@lmtitleempty       %% change here
428   } % end non-titlepage
429

```

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.

```

430
431 \def\@maketitle{%
432   \newpage
433   \null
434   \vskip 2em%
435   {\maintitlefont \@title \postmaintitle}
436   {\mainauthorfont \@author \postmainauthor}
437   {\maindatefont \@date \postmaindate}
438   \par
439   \vskip 1.5em}
440 \fi % end mod A of titling
441

```

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

```

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

```

```

446 \hb@xt@1.8em{%
447   \hss\@textsuperscript{\normalfont\@thefnmark}}##1}%
448 \if@twocolumn
449   \ifnum \col@number=\@ne
450     \@maketitle
451   \else
452     \twocolumn[\@maketitle]%
453   \fi
454 \else
455   \newpage
456   \global\@topnum\z@
457   \@maketitle
458 \fi
459 \thispagestyle{plain}\@thanks
460 }
461

```

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.

```

462 \newcommand{\c@lmbmaketitle}{\par
463   \begingroup
464     \let\newpage\relax
465     \let\@maketitle\c@lmbmaketitle
466     \c@lmtitle
467   \endgroup
468   \setcounter{footnote}{0}%
469   \c@lmtitleempty
470 }
471

```

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

```

472 \newcommand{\c@lmtitleempty}{%
473   \global\let\@thanks\@empty
474   \global\let\@author\@empty
475   \global\let\@date\@empty
476   \global\let\@title\@empty
477 }

```

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

```

\postimporttitle 478 \newcommand{\importtitlefont}{\begin{center}\LARGE\bfseries}
\importauthorfont 479 \newcommand{\postimporttitle}{\par\end{center}}
\postimportauthor 480 \newcommand{\importauthorfont}{\begin{center}
  \importdatefont 481   \large\itshape \lineskip .5em%
  \postimportdate 482   \begin{tabular}[t]{c}}
483 \newcommand{\postimportauthor}{\end{tabular}\par\end{center}}
484 \newcommand{\importdatefont}{\begin{center}\large}
485 \newcommand{\postimportdate}{\par\end{center}}
486

```

`\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`.

```

487 \newcommand{\c@lb@maketitle}{%
488 %% \newpage
489 \begingroup
490 \let\footnote\thanks
491 \null
492 \vskip 2em%
493 \ifc@lnotitle\else
494   {\importtitlefont \@title \postimporttitle}
495 \fi
496 \ifc@lnoauthor\else
497   {\importauthorfont \@author \postimportauthor}
498 \fi
499 \ifc@lnodate\else
500   {\importdatefont \@date \postimportdate}%
501 \fi
502 \par
503 \endgroup
504 }
505

```

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`.

```

506 \newcommand{\c@lb@starttoc}[1]{%
507 \begingroup
508 \makeatletter
509 \def\tocfname{\jobname.#1}
510 \@input{\tocfname}%
511 \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).

```

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

```

```

519     \else
520     \def\c@ltempb{lot}
521     \ifx \c@tempa \c@ltempb
522     \immediate\openout\c@lloffnum \tocfname\relax
523     \else
524     \expandafter\newwrite\csname c@l#1fnum\endcsname
525     \immediate\openout\csname c@l#1fnum\endcsname \tocfname\relax
526     \fi
527     \fi
528     \fi
529     \fi
530     \@nobreakfalse
531 \endgroup}
532

```

`\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.

```

533 \newcommand{\c@lb@writefile}[2]{%
534   \def\tocfname{\jobname.#1}
535   \IfFileExists{\tocfname}
536   {\@temptokena{#2}%
537    \immediate\write\csname c@l#1fnum\endcsname{\the\@temptokena}}
538   {}
539 }
540

```

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

```

541 \newcommand{\c@lcloseotocs}{%
542   \immediate\closeout\c@ltoctfnum
543   \immediate\closeout\c@lloffnum
544   \immediate\closeout\c@lloffnum
545 }
546

```

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

```

547 \newcommand{\c@ltoctogobble}{%
548   \let\label\@gobble \let\index\@gobble \let\glossary\@gobble}
549

```

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

```

\c@laaddcontentsline
550 \newcommand{\c@laaddtocontents}[2]{%
551   \protected@write\@mainaux
552   {\c@ltoctogobble}%
553   {\string\@writefile{#1}{#2}}
554 }
555 \newcommand{\c@laaddcontentsline}[3]{%
556   \c@laaddtocontents{#1}{\protect\contentsline{#2}{#3}{\thecolpage}}
557 }
558

```

`\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.

```

559 \ifc@lmaintoc
560   \newcommand{\c@lbaddtocontents}[2]{%
561     \protected@write@auxout
562       {\c@lctocgobble}%
563       {\string\@writefile{#1}{#2}}
564     \ifx\@mainaux\@auxout\else %% prevent writing twice to mainaux
565       \protected@write\@mainaux
566         {\c@lctocgobble}%
567         {\string\@writefile{#1}{\protect\begin{tocindent}{\toctocindent}}}
568       \protected@write\@mainaux
569         {\c@lctocgobble}%
570         {\string\@writefile{#1}{#2}}
571       \protected@write\@mainaux
572         {\c@lctocgobble}%
573         {\string\@writefile{#1}{\protect\end{tocindent}}}
574     \fi
575   }
576 \fi
577

```

`\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.

```

578 \newcommand{\c@lblabel}[1]{\@bsphack
579   \protected@write@auxout{%
580     {\string\newlabel{#1}{\@currentlabel}{\thecolpage}}}%
581   \@esphack}
582 \newcommand{\c@lb@setref}[3]{%
583   \ifx#1\relax
584     \protect\G@refundefinedtrue
585     \nfss@text{\reset@font\bfseries ??}%
586     \@latex@warning{Reference ‘#3’ on page \thecolpage \space
587       undefined}%
588   \else
589     \expandafter#2#1\null
590   \fi}
591

```

`\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.

```

592 \newcommand{\c@lbnewlabel}{\@newl@bel{R?\jobname?}}
593 \newcommand{\c@lbref}[1]{\expandafter\@setref\c@name R?\jobname?@#1\endc@name
594   \@firstoftwo{#1}}
595 \newcommand{\c@lbpageref}[1]{\expandafter\@setref\c@name R?\jobname?@#1\endc@name
596   \@secondoftwo{#1}}
597

```

`\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.

```

598 \newcommand{\c@lwritemainbib}{%
599     \if@filesw\immediate\write\@mainaux{\string\citation{\@citeb}}\fi
600     \@ifundefined{b@\@citeb}{\mbox{\reset@font\bfseries ?}}%
601     \G@refundefinedtrue
602     \latex@warning
603     {Citation ‘\@citeb’ on page \thecolpage \space undefined}}%
604     {\hbox{\csname b@\@citeb\endcsname}}}
605 \newcommand{\c@lwritelocalbib}{%
606     \if@filesw\immediate\write\@auxout{\string\citation{\@citeb}}\fi
607     \@ifundefined{B?\jobname?\@citeb}{\mbox{\reset@font\bfseries ?}}%
608     \G@refundefinedtrue
609     \latex@warning
610     {Citation ‘\@citeb’ on page \thecolpage \space undefined}}%
611     {\hbox{\csname B?\jobname?\@citeb\endcsname}}}
612

```

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

```

613 \newcommand{\c@lanocite}[1]{\@bsphack
614   \@for\@citeb:=#1\do{%
615     \edef\@citeb{\expandafter\@firstofone\@citeb}%
616     \if@filesw\immediate\write\@mainaux{\string\citation{\@citeb}}\fi
617     \@ifundefined{b@\@citeb}{\G@refundefinedtrue
618       \latex@warning{Citation ‘\@citeb’ undefined}}{}}%
619   \@esphack}
620 \let\nocite\c@lanocite
621

```

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

```

622 \newcommand{\c@lbnocite}[1]{\@bsphack
623   \@for\@citeb:=#1\do{%
624     \edef\@citeb{\expandafter\@firstofone\@citeb}%
625     \if@filesw\immediate\write\@auxout{\string\citation{\@citeb}}\fi
626     \@ifundefined{B?\jobname?\@citeb}{\G@refundefinedtrue
627       \latex@warning{Citation ‘\@citeb’ undefined}}{}}%
628   \@esphack}
629

```

`\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.

```

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

```

```

636     {\@citea\def\@citea{,\penalty\@m\ }%
637     \edef\@citeb{\expandafter\@firstofone\@citeb\@empty}%
638     \ifc@lcombib
639       \c@lwritelocalbib
640     \else
641       \ifc@lonebib
642         \c@lwritemainbib
643       \else
644         \c@lwritelocalbib
645       \fi
646     \fi}}{\#1}}
647
648 \ifc@lonebib
649   \newcommand{\c@lbbibcite}{\@newl@bel b}
650 \ifc@lcombib
651   \renewcommand{\c@lbbibcite}{\@newl@bel{B?\jobname?}}
652 \fi
653 \else
654   \newcommand{\c@lbbibcite}{\@newl@bel{B?\jobname?}}
655 \fi
656

```

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`).

```

657 \newcommand{\c@lapagestyle}[1]{%
658   \gdef\c@lastyle{#1}
659   \ifundefined{ps@#1}{\@nameuse{ps@#1}}
660 }

```

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

```

661 \newcommand{\c@lpagestyle}[1]{%
662   \ifundefined{ps@#1}{\@nameuse{ps@#1}}
663 }
664

```

`\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.

```

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

```

```

671 \fi
672
\c@laps@plain Alternative definitions for the plain pagestyle.
\c@lbp@plain 673 \if@twoside
674   \newcommand{\c@laps@plain}{%
675     \let\mkboth@gobbletwo
676     \let\oddhead@empty \let\evenhead@empty
677     \def\oddfoot{\reset@font\hfil\thepage}%
678     \def\evenfoot{\reset@font\thepage\hfil}%
679   }
680   \ifc@lfolios
681     \newcommand{\c@lbp@plain}{%
682       \let\mkboth@gobbletwo
683       \let\oddhead@empty \let\evenhead@empty
684       \def\oddfoot{\reset@font(\thepage)\hfil\thecolpage}%
685       \def\evenfoot{\reset@font\thecolpage\hfil(\thepage)}}%
686     }
687   \else
688     \newcommand{\c@lbp@plain}{%
689       \let\mkboth@gobbletwo
690       \let\oddhead@empty \let\evenhead@empty
691       \def\oddfoot{\reset@font\hfil\thecolpage}%
692       \def\evenfoot{\reset@font\thecolpage\hfil}%
693     }
694   \fi
695 \else
696   \newcommand{\c@laps@plain}{%
697     \let\mkboth@gobbletwo
698     \let\oddhead@empty \let\evenhead@empty
699     \def\oddfoot{\reset@font\hfil\thepage}%
700     \let\evenfoot@oddfoot
701   }
702   \ifc@lfolios
703     \newcommand{\c@lbp@plain}{%
704       \let\mkboth@gobbletwo
705       \let\oddhead@empty \let\evenhead@empty
706       \def\oddfoot{\reset@font(\thepage)\hfil\thecolpage}%
707       \let\evenfoot@oddfoot
708     }
709   \else
710     \newcommand{\c@lbp@plain}{%
711       \let\mkboth@gobbletwo
712       \let\oddhead@empty \let\evenhead@empty
713       \def\oddfoot{\reset@font\hfil\thecolpage}%
714       \let\evenfoot@oddfoot
715     }
716   \fi
717 \fi
718

```

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.

```

719 \if@twoside
720   \newcommand{\ps@combine}{%
721     \let\mkboth@gobbletwo
722     \let\@oddhead@empty \let\@evenhead@empty
723     \def\@oddfoot{\reset@font\hfil\thepage}%
724     \def\@evenfoot{\reset@font\thepage\hfil}%
725     \let\ps@plain\c@laps@plain
726   }
727 \else
728   \newcommand{\ps@combine}{%
729     \let\mkboth@gobbletwo
730     \let\@oddhead@empty \let\@evenhead@empty
731     \def\@oddfoot{\reset@font\hfil\thepage}%
732     \let\@evenfoot\@oddfoot
733     \let\ps@plain\c@laps@plain
734   }
735 \fi
736
```

`\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 order⁷.

```

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

```

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

```

755 \let\@auxout\@partaux
756 \@input@{#1.tex}%
757 %% \writeckpt{#1}%
758 \let\@auxout\@mainaux
759 }
760
\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.
761 \newcommand*\bodytitlemark[1]{%
762 \newcounter{bodytitle}
763 \renewcommand{\thebodytitle}{\@arabic\c@bodytitle}
764 \ifc@lhaschapter
765 \newcommand{\bodytitle}{\@startsection{bodytitle}{0}{\z@}%
766 {-3.5ex \@plus -1ex \@minus -.2ex}%
767 {2.3ex \@plus.2ex}%
768 {\normalfont\Huge\bfseries}}
769 \else
770 \newcommand{\bodytitle}{\@startsection{bodytitle}{1}{\z@}%
771 {-3.5ex \@plus -1ex \@minus -.2ex}%
772 {2.3ex \@plus.2ex}%
773 {\normalfont\Large\bfseries}}
774 \fi
775
\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.
776 \newcommand{\c@l@chapseci}{%
777 % \setlength\@tempdima{1.5em}%
778 \setlength\@tempdima{0em}%
779 \begingroup
780 \parindent \z@ \rightskip \@pnumwidth
781 \parfillskip -\@pnumwidth
782 \leavevmode
783 }
784 \newcommand{\c@l@chapsecii}[2]{%
785 \advance\leftskip\@tempdima
786 \hskip -\leftskip
787 #1\nobreak\hfil \nobreak\hb@xt@\@pnumwidth{\hss #2}\par
788 }
789
\l@bodytitle \l@bodytitle typesets the ToC entry for \bodytitle.
790 \ifc@lhaschapter
791 \newcommand*\l@bodytitle[2]{% % as per chapter
792 \ifnum \c@tocdepth >\m@ne
793 \addpenalty{-\@highpenalty}%

```

```

794     \addvspace{1.0em \@plus\p@}%
795     \c@ll@chapseci
796     \bfseries                %% bold ToC entry
797     \c@ll@chapsecii{#1}{#2}
798     \penalty\@highpenalty
799     \endgroup
800   \fi}
801 \else
802   \newcommand*\l@bodytitle[2]{% % as per section
803     \ifnum \c@tocdepth >\z@
804       \addpenalty\@secpenalty
805       \addvspace{1.0em \@plus\p@}%
806       \c@ll@chapseci
807       \bfseries                %% bold ToC entry
808       \c@ll@chapsecii{#1}{#2}
809       \endgroup
810     \fi}
811 \fi
812
\toctitleindent These lengths control the indentations of the imported title, author, published,
\tocauthorindent and sectional headings in the main ToC.
\tocpubindent 813 \newlength{\toctitleindent}\setlength{\toctitleindent}{0pt}
\tococindent 814 \newlength{\tocauthorindent}\setlength{\tocauthorindent}{1.5em}
815 \newlength{\tocpubindent}\setlength{\tocpubindent}{1.5em}
816 \newlength{\tococindent}\setlength{\tococindent}{1.5em}
817
tocindent The tocindent environment is used to set the various main ToC indents.
818 \newenvironment{tocindent}[1]{%
819   \hangindent #1 \hangafter -100\relax}{%
820
\toctitlefont These macros define the fonts to be used for typesetting the title, author and
\tocauthorfont publication entries in the main ToC.
\tocpubfont 821 \newcommand{\toctitlefont}{\bfseries}
822 \newcommand{\tocauthorfont}{\itshape}
823 \newcommand{\tocpubfont}{\normalfont}
824
\coltoctitle \coltoctitle{<title>} adds <title> to the ToC for the following imported docu-
\l@coltoctitle ment. The ToC entry is typeset by \l@coltoctitle.
825 \newcommand*\coltoctitle[1]{%
826   \c@ltoctitletrue%
827   \gdef\savec@ltoctitle{#1}
828 }
829

```

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.

```

830 \ifc@lhaschapter
831   \newcommand*\l@coltoctitle[2]{% % as per chapter
832     \ifnum \c@tocdepth >\m@ne
833       \addpenalty{-\@highpenalty}% encourage page break
834       \addvspace{1.0em \@plus\p@}%
835       \c@ll@chapseci
836       \setlength{\@tempdima}{\toctitleindent}% eliminate any spaces here
837       \toctitlefont           %% bold ToC entry
838       \c@ll@chapsecii{#1}{#2}
839       \penalty\@highpenalty   % discourage page break
840       \endgroup
841     \fi}
842 \else
843   \newcommand*\l@coltoctitle[2]{% % as per section
844     \ifnum \c@tocdepth >\z@
845       \addpenalty\@secpenalty
846       \addvspace{1.0em \@plus\p@}%
847       \c@ll@chapseci
848       \setlength{\@tempdima}{\toctitleindent}% eliminate any spaces here
849       \toctitlefont           %% bold ToC entry
850       \c@ll@chapsecii{#1}{#2}
851       \penalty\@highpenalty   % discourage page break
852       \endgroup
853     \fi}
854 \fi
855

```

`\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.

```

856 \newcommand*\coltocauthor[1]{%
857   \c@ltocauthortrue%
858   \gdef\savec@ltocauthor{#1}
859 }
860

```

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

```

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

```

```

873 \ifnum \c@tocdepth >\z@
874 \c@ll@chapseci
875 \setlength{\@tempdima}{\tocauthorindent}% eliminate any spaces here
876 \tocauthorfont %% italic ToC entry
877 \c@ll@chapsecii{#1}{ }
878 \penalty\@highpenalty % discourage page break
879 \endgroup
880 \fi}
881 \fi
882

```

`\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.

```

883 \newcommand{\published}[2][\@empty]{%
884 \c@lpubtrue
885 \ifc@lnopubintoc\else
886 \ifx #1\@empty
887 \gdef\savvec@lpublished{#2}
888 \else
889 \gdef\savvec@lpublished{#1}
890 \fi
891 \fi
892 \ifc@lnopubindoc\else
893 {\parindent \z@ \pubfont #2\par\nobreak}
894 \fi
895 }
896 \newcommand{\pubfont}{\normalfont\centering}
897

```

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.

```

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

```

```

912     \tocpubfont           %% normal font ToC entry
913     \c@ll@chapsecii{#1}{}
914     \endgroup
915     \fi}
916 \fi
917
\erasetitling This macro sets the \coltoctitle, \coltocauthor and \published flags to
FALSE.
918 \newcommand{\erasetitling}{\c@ltoctitlefalse\c@ltoctocauthorfalse\c@lpubfalse}
919
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.
920 \newenvironment{papers}[1][\cleardoublepage]{%
921 #1
922 \setuppapers
923 }{%
924 \takedownpapers
925 }
926
\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. .
927 \newcommand{\setuppapers}{%
928 \let\documentclass\c@lbdocumentclass
929 \ifc@lpackages\else \let\usepackage\c@lbusepackage \fi
930 \let\document\c@lbdocument
931 \let\enddocument\c@lbenddocument
932 \let\LoadClass\c@lbLoadClass
933 %% \let\maketitle\c@lbmaketitle
934 \def\maketitle{\c@lbmaketitle}
935 \let\@writefile\c@lb@writefile
936 \let\@starttoc\c@lb@starttoc
937 \ifc@lnomaketitle \let\maketitle\relax \fi
938 \ifc@lnotoc \let\tableofcontents\relax \fi
939 \ifc@lnolof \let\listoffigures\relax \fi
940 \ifc@lnolot \let\listoftables\relax \fi
941 \ifc@lmaintoc \let\addtocontents\c@lbaddtocontents \fi
942 \let\label\c@lblabel
943 \let\@setref\c@lb@setref
944 \let\newlabel\c@lbnewlabel
945 \let\ref\c@lbref
946 \let\pageref\c@lbpageref
947 %% \renewcommand{\bibliographystyle}[1]{}
```

```

948 \ifc@lcombib
949 \else
950   \ifc@lonebib
951     \renewcommand{\bibliography}[1]{
952       \fi
953     \fi
954 \let\@citex\c@lb@citex
955 \let\bibcite\c@lbbibcite
956 \let\nocite\c@lbnocite
957 \ifc@lhaschapter
958   \renewcommand{\chapter}{\@startsection{chapter}{0}{\z@}%
959     {-3.5ex \@plus -1ex \@minus -.2ex}%
960     {2.3ex \@plus .2ex}%
961     {\normalfont\Large\bfseries}}
962 \fi
963 \c@ltoctitlefalse
964 \c@ltoctauthorfalse
965 \c@lpubfalse
966 \let\pagenumbering\c@lbpagenumbering
967 \setcounter{colpage}{\value{page}}
968 \let\pagestyle\c@lbpagestyle
969 \pagestyle{\c@lastyle}
970 \let\include\input
971 }
972

```

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

```

973 \newcommand{\takedownpapers}{%
974 }
975

```

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

```

976 \newcommand{\emptyAtBeginDocument}{\let\@begindocumenthook\@empty}
977

```

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

```

978 \let\document\c@ladocument
979 \let\enddocument\c@laenddocument
980 %%\let\maketitle\c@lamaketitle
981 \let\pagestyle\c@lapagestyle
982 \pagestyle{combine}
983

```

The end of this class.

```

984 </usc>

```

11 The `combinet` package code

```

985 < *pck >

```

The usual preliminaries. The combine class is expected.

```
986 \NeedsTeXFormat{LaTeX2e}
987 \ProvidesPackage{combinet}[2004/03/06 v0.2a document titles in ToC]
988 \@ifclassloaded{combine}{}{%
989   \PackageError{combinet}{The 'combine' class is expected}{\@ehc}%
990 }
991
```

```
\ifc@lnomtitle Booleans for implementing the options.
\ifc@lnomauthor 992 \newif\ifc@lnomtitle
\ifc@lnothanks 993 \c@lnomtitlefalse
\ifc@lpubopt 994 \newif\ifc@lnomauthor
\ifc@lpubtop 995 \c@lnomauthorfalse
\ifc@lpubs 996 \newif\ifc@lnothanks
997 \c@lnothanksfalse
998 \newif\ifc@lpubopt
999 \c@lpuboptfalse
1000 \newif\ifc@lpubtop
1001 \c@lpubtopfalse
1002 \newif\ifc@lpubs
1003 \c@lpubsfalse
1004
```

Declare and execute the options.

```
1005 \DeclareOption{nomtitle}{\c@lnomtitletrue}
1006 \DeclareOption{nomauthor}{\c@lnomauthortrue}
1007 \DeclareOption{nothanks}{\c@lnothankstrue}
1008 \DeclareOption{pub}{\c@lpubopttrue\c@lpubtopfalse\c@lpubstrue}
1009 \DeclareOption{pubtop}{\c@lpubtoptrue\c@lpuboptfalse\c@lpubstrue}
1010 \ProcessOptions\relax
1011
```

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

```
\c@lpubbody 1012 \ifc@lpubs
1013   \renewcommand{\published}[2][\@empty]{%
1014     \c@lpubtrue
1015     \ifx #1\@empty
1016       \gdef\c@lpubtoc{#2}
1017     \else
1018       \gdef\c@lpubtoc{#1}
1019     \fi
1020     \gdef\c@lpubbody{#2}
1021   }
1022 \fi
1023
```

`\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 Kastrup⁸ and Donald Arseneau⁹ both pointed out the use of `\protected@xdef`. Barbara Beeton¹⁰ suggested adding the `\unskip` to the redefinition of `\and` in order to remove any preceding spaces when it gets printed in the ToC.

```

1024 \appendiargdef{\title}{%
1025   \begingroup
1026     \renewcommand{\thanks}[1]{ }
1027     \protected@xdef\c@l@title{#1}
1028   \endgroup
1029 }
1030 \appendiargdef{\author}{%
1031   \begingroup
1032     \renewcommand{\thanks}[1]{ }
1033     \renewcommand{\and}{\unskip, }
1034     \protected@xdef\c@l@author{#1}
1035   \endgroup
1036 }
1037

```

`\c@l@b@maketitle` The `\c@l@b@maketitle` 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.

```

1038 \def\c@l@b@maketitle{\par
1039   \begingroup
1040     \let\newpage\relax
1041     \let\@maketitle\c@l@b@maketitle
1042     \ifc@l@pub
1043       \ifc@l@pubtop
1044         \ifc@l@n@pub@bindoc\else
1045           {\parindent\z@ \pubfont \c@l@pubbody\par\nobreak}
1046         \fi
1047       \fi
1048     \fi
1049     \c@l@mtitle      %% typeset the title block
1050   \endgroup
1051   \setcounter{footnote}{0}
1052   \begingroup
1053     \let\thanks\@empty
1054     \ifc@l@toctitle\else
1055       \ifc@l@nomtitle\else
1056         \ifx\@title\@empty\else
1057           \ifc@l@nothanks

```

I originally used

⁸At dak@neuroinformatik.ruhr-uni-bochum.de.

⁹At asnd@triumf.ca.

¹⁰bnb@ams.org

```

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

```

below, but James Szinger¹¹ 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).

```

1058     \c@laaddcontentsline{toc}%
1059     {coltoctitle}{\protect\numberline{}\c@l@title}%
1060     \else
1061     \c@laaddcontentsline{toc}%
1062     {coltoctitle}{\protect\numberline{}\@title}%
1063     \fi
1064     \fi
1065     \fi
1066   \fi
1067   \ifc@ltoauthor\else
1068   \ifc@lnomauthor\else
1069   \ifx\@author\@empty\else
1070   \ifc@lnothanks
1071     \c@laaddcontentsline{toc}%
1072     {coltoauthor}{\protect\numberline{}\c@l@author}
1073   \else
1074     \c@laaddcontentsline{toc}%
1075     {coltoauthor}{\protect\numberline{}\@author}
1076   \fi
1077   \fi
1078   \fi
1079 \fi
1080 \endgroup
1081 \ifc@lpub
1082   \ifc@lpubopt
1083     \ifc@lnopubindoc\else
1084     {\parindent\z@ \pubfont \c@lpubbody\par\nobreak}
1085     \fi
1086   \fi
1087   \ifc@lpubs
1088     \ifc@lnopubintoc\else
1089     \c@laaddcontentsline{toc}{published}{\protect\numberline{}\c@lpubtoc}
1090     \fi
1091   \fi
1092 \fi
1093 \c@lmtitleempty
1094 }
1095

```

¹¹Email, 2004/03/05, szinger@lanl.gov

The end of this package
1096 \langle /pck \rangle

12 The `combnat` package code

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

1097 \langle *natpack \rangle

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

```
1098 \NeedsTeXFormat{LaTeX2e}
1099 \ProvidesPackage{combnat}[2003/05/22 v0.21 combined natbib package]
1100 \ifclassloaded{combine}{}{-%
1101   \PackageError{combnat}{The 'combine' class is expected}{\@ehc}}
1102 \RequirePackageWithOptions{natbib}
1103
```

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.

```
1104 \newcommand{\c@lNATwritemainbib}{-%
1105   \if@filesw\immediate\write\@mainaux{\string\citation{\@citeb}}\fi
1106   \ifundefined{b@\@citeb\@extra@b@citeb}{-%
1107     {\reset@font\bfseries?}
1108     \NAT@citeundefined\PackageWarning{natbib}%
1109     {Citation '\@citeb' on page \thepage \space undefined}}
1110
1111 \newcommand{\c@lNATwritemainbibdate}{-%
1112   \if@filesw\immediate\write\@mainaux{\string\citation{\@citeb}}\fi
1113   \ifundefined{b@\@citeb\@extra@b@citeb}{\@citea%
1114     {\reset@font\bfseries ?}\NAT@citeundefined
1115     \PackageWarning{natbib}%
1116     {Citation '\@citeb' on page \thepage \space undefined}
1117     \def\NAT@date{}}
1118
```

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

```
1119 \newcommand{\c@lNATwritelocalbib}{-%
1120   \if@filesw\immediate\write\@auxout{\string\citation{\@citeb}}\fi
1121   \ifundefined{B?\jobname?@\@citeb\@extra@b@citeb}{-%
```

```

1122 {\reset@font\bfseries?}
1123 \NAT@citeundefined\PackageWarning{natbib}%
1124 {Citation ‘\@citeb’ on page \thepage \space undefined}}
1125
1126 \newcommand{\c@lNATwritelocalbibdate}{%
1127 \if@files\immediate\write\@auxout{\string\citation{\@citeb}}\fi
1128 \@ifundefined{B?\jobname?\@citeb\@extra@b@citeb}{\@citea%
1129 {\reset@font\bfseries ?}\NAT@citeundefined
1130 \PackageWarning{natbib}%
1131 {Citation ‘\@citeb’ on page \thepage \space undefined}
1132 \def\NAT@date{}}
1133

```

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

```

1134 \newcommand{\c@lNAT@citexnum@swatru}{%
1135 \ifnum\NAT@ctype>1\relax\@citea
1136 \hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1137 \ifnum\NAT@ctype=2\relax\NAT@test{\NAT@ctype}%
1138 \else\NAT@alias
1139 \fi\hyper@natlinkend\else
1140 \ifnum\NAT@sort>1\relax
1141 \begingroup\catcode‘\_ =8
1142 \ifcat _\ifnum\z@<0\NAT@num _\else A\fi
1143 \global\let\NAT@nm=\NAT@num \else \gdef\NAT@nm{-2}\fi
1144 \ifcat _\ifnum\z@<0\NAT@last@num _\else A\fi
1145 \global\@tempcnta=\NAT@last@num \global\advance\@tempcnta by\@ne
1146 \else \global\@tempcnta@m@ne\fi
1147 \endgroup
1148 \ifnum\NAT@nm=\@tempcnta
1149 \ifx\NAT@last@yr\relax
1150 \edef\NAT@last@yr{\@citea \mbox{\noexpand\citenumfont\NAT@num}}%
1151 \else
1152 \edef\NAT@last@yr{--\penalty\@m\mbox{\noexpand\citenumfont\NAT@num}}%
1153 \fi
1154 \else
1155 \NAT@last@yr \@citea \mbox{\citenumfont\NAT@num}%
1156 \let\NAT@last@yr\relax
1157 \fi
1158 \else
1159 \@citea \mbox{\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1160 {\citenumfont\NAT@num}\hyper@natlinkend}%
1161 \fi
1162 \fi
1163 \def\@citea{\NAT@sep\penalty\@m\NAT@space}%
1164 }
1165

```

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

```

1166 \def\NAT@citexnum[#1][#2]#3{%
1167 \NAT@sort@cites{#3}%

```

```

1168 \let\@citea\@empty
1169 \@cite{\def\NAT@num{-1}\let\NAT@last@yr\relax\let\NAT@nm\@empty
1170 \for\@citeb:=\NAT@cite@list\do
1171   {\edef\@citeb{\expandafter\@firstofone\@citeb}%
1172    \c@lNATwritemainbib   %% change here
1173    {\let\NAT@last@num\NAT@num\let\NAT@last@nm\NAT@nm
1174     \NAT@parse{\@citeb}%
1175     \ifNAT@longnames\ifundefined{bv@\@citeb\@extra@b@citeb}{%
1176      \let\NAT@name=\NAT@all@names
1177      \global\@namedef{bv@\@citeb\@extra@b@citeb}{}}}%
1178     \fi
1179     \ifNAT@full\let\NAT@nm\NAT@all@names\else
1180      \let\NAT@nm\NAT@name
1181     \fi
1182   \ifNAT@swa
1183     \c@lNAT@citexnum@swatrue
1184   \else
1185     \ifcase\NAT@ctype\relax
1186       \ifx\NAT@last@nm\NAT@nm \NAT@yrsep\penalty\@m\NAT@space\else
1187         \@citea \NAT@test{1}\ \NAT@open
1188         \if*#1*\else#1\ \fi\fi \NAT@mbox{%
1189         \hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1190         {\citenumfont\NAT@num}\hyper@natlinkend}%
1191         \def\@citea{\NAT@close\NAT@sep\penalty\@m\ }%
1192       \or\@citea
1193         \hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1194         \NAT@test{\NAT@ctype}\hyper@natlinkend
1195         \def\@citea{\NAT@sep\penalty\@m\ }%
1196       \or\@citea
1197         \hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1198         \NAT@test{\NAT@ctype}\hyper@natlinkend
1199         \def\@citea{\NAT@sep\penalty\@m\ }%
1200       \or\@citea
1201         \hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1202         \NAT@alias\hyper@natlinkend
1203         \def\@citea{\NAT@sep\penalty\@m\ }%
1204       \fi
1205     \fi
1206   }%
1207   \ifnum\NAT@sort>1\relax\NAT@last@yr\fi
1208   \ifNAT@swa\else\ifnum\NAT@ctype=0\if*#2*\else
1209   \NAT@cmt#2\fi \NAT@close\fi\fi}{#1}{#2}}
1210

```

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

```

1211 \def\c@lNAT@citexnum[#1][#2]#3{%
1212 \ifc@lcombib\c@lNATnocite{#3}\fi   %% change here
1213 \NAT@sort@cites{#3}%
1214 \let\@citea\@empty
1215 \@cite{\def\NAT@num{-1}\let\NAT@last@yr\relax\let\NAT@nm\@empty

```

```

1216 \for\@citeb:=\NAT@cite@list\do
1217 {\edef\@citeb{\expandafter\@firstofone\@citeb}%
1218 \c@lNATwritelocalbib          %% change here
1219 {\let\NAT@last@num\NAT@num\let\NAT@last@nm\NAT@nm
1220 \NAT@parse{\@citeb}%
1221 \ifNAT@longnames\@ifundefined{bv@\@citeb\@extra@b@citeb}{%
1222 \let\NAT@name=\NAT@all@names
1223 \global\@namedef{bv@\@citeb\@extra@b@citeb}{}}{}}%
1224 \fi
1225 \ifNAT@full\let\NAT@nm\NAT@all@names\else
1226 \let\NAT@nm\NAT@name\fi
1227 \ifNAT@swa
1228 \c@lNAT@citexnum@swatrue
1229 \else
1230 \ifcase\NAT@ctype\relax
1231 \ifx\NAT@last@nm\NAT@nm \NAT@yrsep\penalty\@m\NAT@space\else
1232 \@citea \NAT@test{1}\ \NAT@@open
1233 \if*#1*\else#1\ \fi\fi \NAT@mbox{%
1234 \hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1235 {\citenumfont\NAT@num}\hyper@natlinkend}%
1236 \def\@citea{\NAT@@close\NAT@sep\penalty\@m\ }%
1237 \or\@citea
1238 \hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1239 \NAT@test{\NAT@ctype}\hyper@natlinkend
1240 \def\@citea{\NAT@sep\penalty\@m\ }%
1241 \or\@citea
1242 \hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1243 \NAT@test{\NAT@ctype}\hyper@natlinkend
1244 \def\@citea{\NAT@sep\penalty\@m\ }%
1245 \or\@citea
1246 \hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1247 \NAT@alias\hyper@natlinkend
1248 \def\@citea{\NAT@sep\penalty\@m\ }%
1249 \fi\fi
1250 }}%
1251 \ifnum\NAT@sort>1\relax\NAT@last@yr\fi
1252 \ifNAT@swa\else\ifnum\NAT@ctype=0\if*#2*\else
1253 \NAT@cmt#2\fi \NAT@@close\fi\fi}{#1}{#2}}
1254

```

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

```

1255 \newcommand{\c@lNAT@citex@swatrue}{%
1256 \ifcase\NAT@ctype
1257 \if\relax\NAT@date\relax
1258 \@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1259 \NAT@nmfmt{\NAT@nm}\NAT@date\hyper@natlinkend
1260 \else
1261 \ifx\NAT@last@nm\NAT@nm\NAT@yrsep
1262 \ifx\NAT@last@yr\NAT@year
1263 \hyper@natlinkstart{\@citeb\@extra@b@citeb}\NAT@exlab

```

```

1264         \hyper@natlinkend
1265     \else
1266         \unskip\
1267         \hyper@natlinkstart{\@citeb\@extra@b@citeb}\NAT@date
1268         \hyper@natlinkend
1269     \fi
1270 \else\@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1271     \NAT@nmfmt{\NAT@nm}%
1272     \hyper@natlinkbreak{\NAT@aysep\ }{\@citeb\@extra@b@citeb}%
1273     \NAT@date\hyper@natlinkend
1274 \fi
1275 \fi
1276 \or\@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1277     \NAT@nmfmt{\NAT@nm}\hyper@natlinkend
1278 \or\@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1279     \NAT@date\hyper@natlinkend
1280 \or\@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1281     \NAT@alias\hyper@natlinkend
1282 \fi \def\@citea{\NAT@sep\ }%
1283 }
1284

```

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

```

1285 \def\NAT@citex%
1286   [#1][#2]#3{%
1287   \NAT@sort@cites{#3}%
1288   \let\@citea\@empty
1289   \@cite{\let\NAT@nm\@empty\let\NAT@year\@empty
1290     \@for\@citeb:=\NAT@cite@list\do
1291     {\edef\@citeb{\expandafter\@firstofone\@citeb}%
1292     \c@lNATwritemainbibdate %%% change here
1293     {\let\NAT@last@nm=\NAT@nm\let\NAT@last@yr=\NAT@year
1294     \NAT@parse{\@citeb}%
1295     \ifNAT@longnames\@ifundefined{bv@\@citeb\@extra@b@citeb}{%
1296       \let\NAT@name=\NAT@all@names
1297       \global\@namedef{bv@\@citeb\@extra@b@citeb}{}}{}}%
1298     \fi
1299     \ifNAT@full\let\NAT@nm\NAT@all@names\else
1300       \let\NAT@nm\NAT@name\fi
1301     \ifNAT@swa
1302       \c@lNAT@citex@swatrue
1303     \else
1304       \ifcase\NAT@ctype
1305         \if\relax\NAT@date\relax
1306           \@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1307           \NAT@nmfmt{\NAT@nm}\hyper@natlinkend
1308         \else
1309           \ifx\NAT@last@nm\NAT@nm\NAT@yrsep
1310             \ifx\NAT@last@yr\NAT@year
1311               \hyper@natlinkstart{\@citeb\@extra@b@citeb}\NAT@exlab

```



```

1360         \ifx\NAT@last@yr\NAT@year
1361             \hyper@natlinkstart{\@citeb\@extra@b@citeb}\NAT@exlab
1362             \hyper@natlinkend
1363         \else\unskip\
1364             \hyper@natlinkstart{\@citeb\@extra@b@citeb}\NAT@date
1365             \hyper@natlinkend
1366         \fi
1367     \else\@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1368         \NAT@nmfmt{\NAT@nm}%
1369         \hyper@natlinkbreak{\ \NAT@@open\if*#1*\else#1\ \fi}%
1370             {\@citeb\@extra@b@citeb}%
1371         \NAT@date\hyper@natlinkend\fi
1372     \fi
1373     \or\@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1374         \NAT@nmfmt{\NAT@nm}\hyper@natlinkend
1375     \or\@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1376         \NAT@date\hyper@natlinkend
1377     \or\@citea\hyper@natlinkstart{\@citeb\@extra@b@citeb}%
1378         \NAT@alias\hyper@natlinkend
1379     \fi \if\relax\NAT@date\relax\def\@citea{\NAT@sep\ }%
1380         \else\def\@citea{\NAT@@close\NAT@sep\ }\fi
1381     \fi
1382     }}\ifNAT@swa\else\if*#2*\else\NAT@cmt#2\fi
1383     \if\relax\NAT@date\relax\else\NAT@@close\fi\fi}{#1}{#2}}
1384

```

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

```

\nocite 1385 \newcommand\c@laNATnocite[1]{\@bsphack
1386     \@for\@citeb:=#1\do{%
1387         \edef\@citeb{\expandafter\@firstofone\@citeb}%
1388         \if@filesw\immediate\write\@mainaux{\string\citation{\@citeb}}\fi
1389         \if*\@citeb\else
1390             \@ifundefined{b@\@citeb\@extra@b@citeb}{%
1391                 \NAT@citeundefined \PackageWarning{natbib}%
1392                 {Citation ‘\@citeb’ undefined}}{\fi}%
1393         \@esphack}
1394 \renewcommand{\nocite}[1]{\c@laNATnocite{#1}}
1395

```

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

```

1396 \newcommand\c@lbNATnocite[1]{\@bsphack
1397     \@for\@citeb:=#1\do{%
1398         \edef\@citeb{\expandafter\@firstofone\@citeb}%
1399         \if@filesw\immediate\write\@auxout{\string\citation{\@citeb}}\fi
1400         \if*\@citeb\else
1401             \@ifundefined{B?\@citeb\@extra@b@citeb}{%
1402                 \NAT@citeundefined \PackageWarning{natbib}%
1403                 {Citation ‘\@citeb’ undefined}}{\fi}%
1404         \@esphack}
1405

```

```

\NAT@wroutr Main version of the original \NAT@wroutr.
1406 \renewcommand{\NAT@wroutr}[5]{%
1407   \if@filesw
1408     {\let\protect\noexpand\let~\relax
1409       \immediate
1410         \write\@mainaux{\string\bibcite{#5}{#1}{#2}{#3}{#4}}}\fi
1411 \ignorespaces}
1412

\c@lbNAT@wroutr Local version of the original \NAT@wroutr.
1413 \newcommand{\c@lbNAT@wroutr}[5]{%
1414   \if@filesw
1415     {\let\protect\noexpand\let~\relax
1416       \immediate
1417         \write\@auxout{\string\bibcite{#5}{#1}{#2}{#3}{#4}}}\fi
1418 \ignorespaces}
1419

\c@laNAT@parse Main and local versions of \NAT@parse.
\c@lbNAT@parse 1420 \newcommand\c@laNAT@parse[1]{%
1421   \let\protect=\@unexpandable@protect\let~\relax
1422   \let\active@prefix=\@gobble
1423   \xdef\NAT@temp{\csname b@#1\@extra@b@citeb\endcsname}}%
1424   \expandafter\NAT@split\NAT@temp
1425   \expandafter\NAT@parse@date\NAT@date?????@%
1426   \ifciteindex\NAT@index\fi}
1427
1428 \newcommand\c@lbNAT@parse[1]{%
1429   \let\protect=\@unexpandable@protect\let~\relax
1430   \let\active@prefix=\@gobble
1431   \xdef\NAT@temp{\csname B?@jobname?@#1\@extra@b@citeb\endcsname}}%
1432   \expandafter\NAT@split\NAT@temp
1433   \expandafter\NAT@parse@date\NAT@date?????@%
1434   \ifciteindex\NAT@index\fi}
1435

\c@laNAT@lbibitem Main and local version of \@lbibitem.
\c@lbNAT@lbibitem 1436 \def\c@laNAT@lbibitem[#1]#2{%
1437   \if\relax\@extra@b@citeb\relax\else
1438     \@ifundefined{br@#2\@extra@b@citeb}{-}{%
1439       \@namedef{br@#2}{\@nameuse{br@#2\@extra@b@citeb}}\fi
1440     \@ifundefined{b@#2\@extra@b@citeb}{\def\NAT@num{}}{\NAT@parse{#2}}%
1441     \item[\hfil\hyper@natanchorstart{#2\@extra@b@citeb}\@biblabel{\NAT@num}%
1442       \hyper@natanchorend]%
1443     \NAT@ifcmd#1(@)(@)\@nil{#2}}
1444
1445 \def\c@lbNAT@lbibitem[#1]#2{%
1446   \if\relax\@extra@b@citeb\relax\else
1447     \@ifundefined{br@#2\@extra@b@citeb}{-}{%

```

```

1448     \@namedef{br@#2}{\@nameuse{br@#2\@extra@b@citeb}}\fi
1449     \@ifundefined{B?\jobname?@#2\@extra@b@citeb}{\def\NAT@num{}}{\NAT@parse{#2}}%
1450     \item[\hfil\hyper@natanchorstart{#2\@extra@b@citeb}\@biblabel{\NAT@num}%
1451     \hyper@natanchorend]%
1452     \NAT@ifcmd#1(0)(0)\@nil{#2}}
1453

```

`\c@laNATbibcite` Main and local versions of `\NATbibcite`.

```

\c@lbNATbibcite 1454 \newcommand\c@laNATbibcite[2]{\@ifundefined{b@#1\@extra@binfo}\relax
1455     {\NAT@citmultiple
1456     \PackageWarningNoLine{natbib}{Citation ‘#1’ multiply defined}}%
1457     \global\@namedef{b@#1\@extra@binfo}{#2}}
1458
1459 \newcommand\c@lbNATbibcite[2]{\@ifundefined{B?\jobname?@#1\@extra@binfo}\relax
1460     {\NAT@citmultiple
1461     \PackageWarningNoLine{natbib}{Citation ‘#1’ multiply defined}}%
1462     \global\@namedef{B?\jobname?@#1\@extra@binfo}{#2}}
1463
1464 \ifc@lonebib
1465     \ifc@lcombib
1466     \else
1467         \renewcommand\c@lbNATbibcite[2]{\@ifundefined{b@#1\@extra@binfo}\relax
1468             {\NAT@citmultiple
1469             \PackageWarningNoLine{natbib}{Citation ‘#1’ multiply defined}}%
1470             \global\@namedef{B?\jobname?@#1\@extra@binfo}{#2}}
1471         \fi
1472     \fi
1473

```

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

```

\c@lbNAT@testdef 1474 \newcommand\c@laNAT@testdef[2]{%
1475     \def\NAT@temp{#2}\expandafter \ifx \csname b@#1\@extra@binfo\endcsname
1476     \NAT@temp \else \ifNAT@swa \NAT@swafalse
1477         \PackageWarningNoLine{natbib}{Citation(s) may have
1478         changed.\MessageBreak
1479         Rerun to get citations correct}\fi\fi}
1480
1481 \newcommand\c@lbNAT@testdef[2]{%
1482     \def\NAT@temp{#2}\expandafter \ifx \csname B?\jobname?@#1\@extra@binfo\endcsname
1483     \NAT@temp \else \ifNAT@swa \NAT@swafalse
1484         \PackageWarningNoLine{natbib}{Citation(s) may have
1485         changed.\MessageBreak
1486         Rerun to get citations correct}\fi\fi}
1487

```

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

```

\c@lbNAT@make@cite@list 1488 \ifnum\NAT@sort>0
1489     \begingroup \catcode'\_ =8
1490     \gdef\c@laNAT@make@cite@list{%

```

```

1491 \edef\@citeb{\expandafter\@firstofone\@citeb}%
1492 \@ifundefined{b@\@citeb\@extra@b@citeb}{\def\NAT@num{A}}%
1493 {\NAT@parse{\@citeb}}%
1494 \ifcat _\ifnum\z@<0\NAT@num _\else A\fi
1495 \@tempcnta\NAT@num \relax
1496 \ifnum \@tempcnta>\@tempcntb
1497 \edef\NAT@num@list{\NAT@num@list \@celt{\NAT@num}}%
1498 \edef\NAT@cite@list{\NAT@cite@list\@citeb,}%
1499 \@tempcntb\@tempcnta
1500 \else
1501 \let\NAT@cite@list=\NAT@cite@list \def\NAT@cite@list{}%
1502 \edef\NAT@num@list{\expandafter\NAT@num@celt \NAT@num@list \@gobble @}%
1503 {\let\@celt=\NAT@celt\NAT@num@list}%
1504 \fi
1505 \else
1506 \edef\NAT@nonsort@list{\NAT@nonsort@list\@citeb,}%
1507 \fi}
1508 \endgroup
1509
1510 \begingroup \catcode'\_ =8
1511 \gdef\c@lbNAT@make@cite@list{%
1512 \edef\@citeb{\expandafter\@firstofone\@citeb}%
1513 \@ifundefined{B?\jobname?@\@citeb\@extra@b@citeb}{\def\NAT@num{A}}%
1514 {\NAT@parse{\@citeb}}%
1515 \ifcat _\ifnum\z@<0\NAT@num _\else A\fi
1516 \@tempcnta\NAT@num \relax
1517 \ifnum \@tempcnta>\@tempcntb
1518 \edef\NAT@num@list{\NAT@num@list \@celt{\NAT@num}}%
1519 \edef\NAT@cite@list{\NAT@cite@list\@citeb,}%
1520 \@tempcntb\@tempcnta
1521 \else
1522 \let\NAT@cite@list=\NAT@cite@list \def\NAT@cite@list{}%
1523 \edef\NAT@num@list{\expandafter\NAT@num@celt \NAT@num@list \@gobble @}%
1524 {\let\@celt=\NAT@celt\NAT@num@list}%
1525 \fi
1526 \else
1527 \edef\NAT@nonsort@list{\NAT@nonsort@list\@citeb,}%
1528 \fi}
1529 \endgroup
1530 \fi
1531

```

Some things are done at the end of a document.

```

1532 \AtEndDocument{%
1533 \ifNAT@stdbst\if@files\write
1534 \@mainaux{\string\global\string\NAT@numberstrue}\fi\fi
1535 }
1536
1537 \AtEndDocument{\NAT@swatrue\let\bibcite\NAT@testdef}
1538

```

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

```

1539 \newcommand{\c@laNAT@set@cites}{\ifNAT@numbers
1540   \ifNAT@super \let\@cite\NAT@citesuper
1541     \def\NAT@mbox##1{\unskip\nobreak\hspace{1\p@}\textsuperscript{##1}}%
1542     \let\citeyearpar=\citeyear
1543     \let\NAT@space\relax\else
1544     \let\NAT@mbox=\mbox
1545     \let\@cite\NAT@citenum \def\NAT@space{ } \fi
1546     \let\@citex\NAT@citexnum
1547     \ifx\@biblabel\@empty\let\@biblabel\NAT@biblabelnum\fi
1548     \let\@bibsetup\NAT@bibsetnum
1549     \def\natexlab##1{}%
1550   \else
1551     \let\@cite\NAT@cite
1552     \let\@citex\NAT@citex
1553     \let\@biblabel\NAT@biblabel
1554     \let\@bibsetup\NAT@bibsetup
1555     \def\natexlab##1{##1}%
1556   \fi}
1557

```

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

```

1558 \newcommand{\c@lbNAT@set@cites}{\ifNAT@numbers
1559   \ifNAT@super \let\@cite\NAT@citesuper
1560     \def\NAT@mbox##1{\unskip\nobreak\hspace{1\p@}\textsuperscript{##1}}%
1561     \let\citeyearpar=\citeyear
1562     \let\NAT@space\relax\else
1563     \let\NAT@mbox=\mbox
1564     \let\@cite\NAT@citenum \def\NAT@space{ } \fi
1565     \let\@citex\NAT@citexnum
1566     \ifx\@biblabel\@empty\let\@biblabel\NAT@biblabelnum\fi
1567     \let\@bibsetup\NAT@bibsetnum
1568     \def\natexlab##1{}%
1569   \else
1570     \let\@cite\NAT@cite
1571     \let\@citex\NAT@citex
1572     \let\@biblabel\NAT@biblabel
1573     \let\@bibsetup\NAT@bibsetup
1574     \def\natexlab##1{##1}%
1575   \fi}
1576

```

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

```

1577 \let\NAT@parse\c@laNAT@parse
1578 %%\let\nocite\c@laNAT@nocite
1579 %%\let\NAT@wroutr\c@laNAT@wroutr
1580 \let\@lbibitem\c@laNAT@lbibitem
1581 \let\bibcite\c@laNAT@bibcite
1582 \let\NAT@testdef\c@laNAT@testdef

```

```

1583 %%\let\NAT@make@cite@list\c@laNAT@make@cite@list
1584 %%\let\NAT@citexnum\c@laNAT@citexnum
1585 %%\let\NAT@citex\c@laNAT@citex
1586

```

And similarly for imported documents

```

1587 \let\c@oldsetuppapers\setuppapers
1588 \newcommand{\c@lNATsetuplocal}{%
1589   \let\NAT@parse\c@lbNAT@parse
1590   \let\nocite\c@lbNATnocite
1591   \let\NAT@wrout\c@lbNAT@wrout
1592   \let\@lbibitem\c@lbNAT@lbibitem
1593   \let\bibcite\c@lbNATbibcite
1594   \let\NAT@testdef\c@lbNAT@testdef
1595   \let\NAT@make@cite@list\c@lbNAT@make@cite@list
1596   \let\NAT@citexnum\c@lbNAT@citexnum
1597   \let\NAT@citex\c@lbNAT@citex
1598   \let\NAT@set@cites\c@lbNAT@set@cites
1599   \c@lbNAT@set@cites
1600 }
1601 \renewcommand{\setuppapers}{%
1602   \c@oldsetuppapers
1603   \ifc@lcombib
1604     \c@lNATsetuplocal
1605   \else
1606     \ifc@lonebib
1607     \else
1608       \c@lNATsetuplocal
1609     \fi
1610   \fi
1611 }
1612

```

The end of this package

```

1613 </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.

```

1614 (*citepack)

```

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

```

1615 \NeedsTeXFormat{LaTeX2e}
1616 \ProvidesPackage{combcite}[2003/11/09 v1.0 combine version of cite package]
1617 \ifclassloaded{combine}{}{%
1618   \PackageError{combcite}{The ‘combine’ class is expected}{\@ehc}}
1619

```

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.

```
1620 \newif\ifc@lbsuperopt
1621 \c@lbsuperoptfalse
```

Now do the options.

```
1622 \DeclareOption{super}{\ExecuteOptions{superscript}}
1623 \DeclareOption{superscript}{\c@lbsuperopttrue}
1624 \PassOptionsToClass{superscript}{cite}
1625 \ProcessOptions
```

We need the latest cite package (version 4.01 November 2003)

```
1626 \RequirePackageWithOptions{cite}[2003/11/04]
1627
```

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`

```
1628 \DeclareRobustCommand\c@lbciten[1]{%
1629 \begingroup
1630 \let\@safe@activesfalse\@empty
1631 %% \c@lb@nocite{#1}% ignores spaces, writes to .aux file, returns #1 in \@no@sparg
1632 \@nocite{#1}% ignores spaces, writes to .aux file, returns #1 in \@no@sparg
1633 \@tempcntb\m@ne % \@tempcntb tracks highest number
1634 \let\@h@ld\@empty % nothing held from list yet
1635 \let\@citea\@empty % no punctuation preceding first
1636 \let\@celt\delimiter % an unexpandable, but identifiable, token
1637 \def\@cite@list{}% % empty list to start
1638 \@for \@citeb:=\@no@sparg\do{\c@lb@make@cite@list}% make a sorted list of numbers
1639 % After sorted citelist is made, execute it to compress citation ranges.
1640 \@tempcnta\m@ne % no previous number
1641 \let\@celt\@compress@cite \@cite@list % output number list with compression
1642 \@h@ld % output anything held over
1643 \endgroup
1644 \@restore@auxhandle
1645 }
1646
```

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

```
1647 \def\c@lb@make@cite@list{%
1648 \expandafter\let \expandafter\@B@citeB
1649 \csname B?\jobname?\@citeb\@extra@b@citeb \endcsname
1650 \ifx\@B@citeB\relax % undefined: output ? and warning
1651 \@citea {\bfseries ?}\let\@citea\citepunct \G@refundefinedtrue
1652 \warning {Citation '\@citeb' on page \thepage\space undefined}%
1653 \oc@verbo \global\@namedef{B?\jobname?\@citeb\@extra@b@citeb}{?}%
1654 \else % defined % remove previous line to repeat warnings
```

```

1655 \ifcat _\ifnum\z@<0\@B@citeB _\else A\fi % a positive number, put in list
1656 \@addto@cite@list
1657 \else % citation is not a number, output immediately
1658 \@citea \citeform{\@B@citeB}\let\@citea\citepunct
1659 \fi\fi}
1660

```

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

```

1661 \ifc@lbcite@superopt
1662 \DeclareRobustCommand{\c@lbcite}{%
1663 \@ifnextchar[{\@tempwattrue\c@lb@citex}{\@tempwafalse\c@lb@citew}}
1664 \else
1665 \DeclareRobustCommand{\c@lbcite}{%
1666 \@ifnextchar[{\@tempwattrue\c@lb@citex}{\@tempwafalse\c@lb@citex[]}}
1667 \fi
1668

```

`\c@lb@citex`

```

1669 \def\c@lb@citex[#1]#2{\@cite{\c@lbciten{#2}}{#1}}
1670

```

`\c@lb@citew`

```

1671 \def\c@lb@citew#1{\begingroup \leavevmode
1672 \@if@fillglue \lastskip \relax \unskip
1673 \def\@tempa{\@tempcnta\spacefactor
1674 \/% this allows the last word to be hyphenated, and it looks better.
1675 \@citess{\c@lbciten{#1}}\spacefactor\@tempcnta
1676 \endgroup \@restore@auxhandle}%
1677 \oc@movep\relax}% check for following punctuation (depending on options)
1678

```

`\c@lbnocite`

```

1679 \DeclareRobustCommand\c@lbnocite[1]{%
1680 \@bsphack \@nocite{#1}%
1681 \@for \@citeb:=\@no@sparg\do{\@ifundefined{B?\jobname?@\@citeb\@extra@b@citeb}%
1682 {\G@refundefinedtrue\@warning{Citation ‘\@citeb’ undefined}%
1683 \oc@verbo \global\@namedef{B?\jobname?@\@citeb\@extra@b@citeb}{?}}}%
1684 \@esphack}
1685

```

`\@nocite`

```

1686 \def\@nocite#1{\begingroup\let\protect\string% normalize active chars
1687 \xdef\@no@sparg{\expandafter\@ignsp#1 \: }\endgroup% and remove ALL spaces
1688 \if@filesw \immediate\write\@newciteauxhandle %= \@auxout, except with multibib
1689 {\string\citation {\@no@sparg}}\fi
1690 }
1691

```

Finally, add the revision to `\setuppapers`.

```
1692 \g@addto@macro{\setuppapers}{\let\cite\c@lbcite}
1693 \g@addto@macro{\setuppapers}{\let\citenum\c@lbciten}
1694 \g@addto@macro{\setuppapers}{\let\citeonline\c@lbciten}
1695
    The end of this package
1696 </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 >\fontsubfuzz\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 `ltniscen.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{%
  \if#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 `\bibcite` and `\@citex` from `ltbibl.dtx`.

```
\def\bibcite{\@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 superscript 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`)

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