The abstract package*

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Abstract

The abstract package provides control over the typesetting of the `abstract` environment, and especially provides for a one-column abstract in a two-column paper.

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1 Introduction

Questions about how to have a one-column abstract in a two-column paper seem to pop up fairly regularly on the `comp.text.tex` newsgroup. While an answer based on responses on `ctt` is provided in the FAQ, the abstract package provides a more author-friendly means of accomplishing this. Further, additional controls are provided for the typesetting of the `abstract` environment in general.

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 abstract package and commented source code is in Section 3.

*This file (`abstract.dtx`) has version number v1.2b, last revised 2026/10/10.

2 The abstract package

The typeset format of the `abstract` in a report or article class[1] document depends on the class options. The formats are:

- titlepage class option: The abstract heading (i.e., value of `\abstractname`) is typeset centered in a bold font; the text is set in the normal font and to the normal width.
- twocolumn class option: The abstract heading is typeset like an unnumbered section; the text is set in the normal font and to the normal width (of a single column).
- Default (neither of the above class options): The abstract heading is typeset centered in a small bold font; the text is set in a small font and indented like the `quotation` environment.

Note that the titlepage option takes precedence over the twocolumn option.

The abstract package provides handles to modify the typesetting of the `abstract`.

2.1 Options

The abstract package takes the following options.

- original. In a twocolumn document the package default is to use the default abstract style (i.e., centered heading and small text). This option sets the typeset format of the abstract to match that of a standard two column document (i.e., section heading and normal sized text).
- addtotoc. The abstract title (the value of `\abstractname`) is added to the Table of Contents.
- number. The abstract title will be typeset as a numbered `\chapter` or as a `\section`, depending on whether the document class supports chapters or not.
- style. You specify the style for the title.[2] The addtotoc option does not apply if you use the style option.
- runin. The abstract title is typeset as a run-in[3] heading. Note that the number and style options are ignored if the runin option is used, and the number and addtotoc options are ignored if the style option is given.

When the number option is used with a class that provides chapters, the usual `\chapter` command is used for typesetting the title. If you do not want the word 'Chapter' (or its equivalent) to appear, you can use the anonchap package to suppress this.

[1] The `abstract` environment is not available for the book class.
[2] This option was suggested by Will Robertson.
[3] This option was suggested by R. Chandrasekhar (`chandra@ee.uwa.edu.au`).

2.2 Commands and environments

The usual advice about creating a one-column `abstract` in a two-column document is to write code like this:

```
\documentclass[twocolumn...]{...}
...
\twocolumn[
   \begin{@twocolumnfalse}
     \maketitle               % need full-width title
     \begin{abstract}
        abstract text...
     \end{abstract}
   \end{@twocolumnfalse}
]
... hand make footnotes for any \thanks commands
...
```

`onecolabstract` (*env.*)
`\saythanks`

With the abstract package, instead you do:

```
\documentclass[twocolumn...]{...}
\usepackage{abstract}
...
\twocolumn[
   \maketitle               % need full-width title
   \begin{onecolabstract}
     abstract text...
   \end{onecolabstract}
]
\saythanks  % typesets any \thanks commands
...
```

If you want, you can use the `onecolabstract` environment in place of the `abstract` environment — it doesn't have to be within the optional argument of the `\twocolumn` command. In fact, `onecolabstract` internally uses `abstract` for the typesetting.

`\abstractnamefont`
`\abstracttextfont`

These two commands can be redefined to change the fonts used for typesetting the heading (defined via `\abstractname`) of the `abstract` environment and the font for typesetting the text of the abstract, respectively. The default definitions for these are designed to mimic the traditional `abstract` typesetting. Different values are used depending on whether the document uses the titlepage and/or twocolumn options. For example, in a non-titlepage one-column paper, their definitions are:

```
\newcommand{\abstractnamefont}{\normalfont\small\bfseries}
\newcommand{\abstracttextfont}{\normalfont\small}
```

`\abstitlestyle`

When the style option is used the title is set as `\abstitlestyle{\abstractname}` where the default definition is simply `\newcommand{\abstitlestyle}[1]{#1}`
It is up to you to redefine `\abstitlestyle` to give any effects you want (e.g., if you want the title added to the ToC you have to include the necessary code as part of your redefinition).

`\absleftindent`
`\absrightindent`
`\absparindent`
`\absparsep`

The amended version of `abstract` uses a list environment for typesetting the text. These four lengths can be changed (via `\setlength`) to adjust the left and right margins, the paragraph indentation, and the vertical skip between paragraphs in this environment. The default values depend on the document class options in effect.

\abslabeldelim If the runin option is used, the heading is typeset as a run-in heading. That is, it is the first piece of text on the first line of the abstract text. The ⟨*text*⟩ as specified by `\abslabeldelim{`⟨*text*⟩`}` is typeset immediately after the heading. By default it is defined to do nothing, but if you wanted, for example, the `\abstractname` to be followed by a colon and some extra space you could specify `\abslabeldelim{:\quad}`.

\absnamepos If the runin option is not used then the heading is typeset in its own environment. `\absnamepos` specifies the name of the environment in which the abstract name is typeset. It can be redefined to be one of `flushleft`, `center`, or `flushright` to give a left, centered or right aligned heading; or to any other appropriate environment which is supported by the document class or used packages.

\abstitleskip With the runin option a space of length `\abstitleskip` is typeset before the heading. For example, if `\absparindent` is non-zero, then:
`\setlength{\abstitleskip}{-\absparindent}`
will typeset the heading flush left.

Without the runin option `\abstitleskip` is additional vertical space (either positive or negative) that is inserted between the abstract name and the text of the abstract.

\appendiargdef The (internal) command `\appendiargdef{`⟨*macro*⟩`}{`⟨*stuff*⟩`}` will append ⟨*stuff*⟩ at the end of the current definition of ⟨*macro*⟩, where ⟨*macro*⟩ is the name of a macro (including the backslash) which takes a single argument. For example the following are two equivalent definitions of `\mymacro`:

```
\newcommand{\mymacro}[1]{#1 is an artist}
\appendiargdef{\mymacro}{ in spite of being colour blind}
% or
\newcommand{\mymacro}[1]{#1 is an artist in spite of being colour blind}
```

3 The package code

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

3.1 Preliminaries

Announce the name and version of the package, which requires LaTeX 2ε.

```
⟨*usc⟩
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{abstract}[2026/10/10 v1.2b configurable abstracts]
```

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

\if@bsonecol
\ifadd@bstotoc
\ifnumber@bs
\if@bsrunin
\if@bsstyle

```
\newif\if@bsonecol
  \@bsonecoltrue
\newif\ifadd@bstotoc
  \add@bstotocfalse
\newif\ifnumber@bs
  \number@bsfalse
\newif\if@bsrunin
  \@bsruninfalse
\newif\if@bsstyle
  \@bsstylefalse
```

(*End of definition for* `\if@bsonecol` *and others.*)

Now declare and process the options.

```
\DeclareOption{original}{\@bsonecolfalse}
\DeclareOption{addtotoc}{\add@bstotoctrue}
\DeclareOption{number}{\number@bstrue}
\DeclareOption{runin}{\@bsrunintrue}
\DeclareOption{style}{\@bsstyletrue}
\ProcessOptions\relax
```

Disable the number and addtotoc option if style is specified. Make sure that the number option is disabled if runin is used (otherwise the addtotoc option may not work as expected) and also disable the style option.

```
\if@bsstyle\number@bsfalse\add@bstotocfalse\fi
\if@bsrunin\number@bsfalse\@bsstylefalse\fi
```

3.2 Abstracts

The original definition of the `abstract` environment given in `ltclasses.dtx` is:

```
\if@titlepage
  \renewenvironment{abstract}{%
    \titlepage
    \null\vfil
    \@beginparpenalty\@lowpenalty
    \begin{center}%
      \bfseries \abstractname
      \@endparpenalty\@M
    \end{center}}%
    {\par\vfil\null\endtitlepage}
\else
  \renewenvironment{abstract}{%
    \if@twocolumn
      \section*{\abstractname}%
    \else
      \small
      \begin{center}%
        {\bfseries \abstractname\vspace{-.5em}\vspace{\z@}}%
      \end{center}%
      \quotation
    \fi}
    {\if@twocolumn\else\endquotation\fi}
\fi
```

The next set of macros comprise the abstract package reimplementation of the `abstract` environment.

\abstractnamefont
\abstracttextfont

These two macros are for specifying the fonts for typesetting the abstract's title and text. They are initialised for the default case (i.e., no class options).

```
\newcommand{\abstractnamefont}{\normalfont\small\bfseries}
\newcommand{\abstracttextfont}{\normalfont\small}
```

(*End of definition for* `\abstractnamefont` *and* `\abstracttextfont`*. These functions are documented on page 3.*)

\absnamepos
\abstitleskip

`\absnamepos` specifies the environment in which the abstract's title name will be typeset, and the length `\abstitleskip` is an adjustment to the vertical space between the title and the abstract's text. These are initialised for the default case.

```
\newcommand{\absnamepos}{center}
\newlength{\abstitleskip} \setlength{\abstitleskip}{-0.5em}
```

(*End of definition for* `\absnamepos` *and* `\abstitleskip`. *These functions are documented on page 4.*)

\absleftindent
\absrightindent
\absparindent
\absparsep

The abstract's text is typeset as a single item list, called `@bstr@ctlist`. These lengths set the left and right margin indents, the paragraph indentation, and the inter-paragraph vertical space. Their initial values are all class option-dependent.

```
\newlength{\absleftindent}
\newlength{\absrightindent}
\newlength{\absparindent}
\newlength{\absparsep}
```

(*End of definition for* `\absleftindent` *and others. These functions are documented on page 3.*)

\abslabeldelim
\@bslabeldelim

The contents of `\abslabeldelim` are typeset after a run-in heading.

```
\newcommand{\abslabeldelim}[1]{\def\@bslabeldelim{#1}}
\abslabeldelim{}
```

(*End of definition for* `\abslabeldelim` *and* `\@bslabeldelim`. *These functions are documented on page 4.*)

\@bsrunintitle

This macro typeset the run-in heading.

```
\newcommand{\@bsrunintitle}{%
  \hspace*{\abstitleskip}{\abstractnamefont\abstractname\@bslabeldelim}}
```

(*End of definition for* `\@bsrunintitle`.)

Now set all the class option-dependent values.

```
\if@titlepage
```

Values for the titlepage class option. Note that this option takes precedence over any other option.

```
  \setlength{\absleftindent}{\z@}
  \renewcommand{\abstractnamefont}{\normalfont\bfseries}
  \renewcommand{\abstracttextfont}{\normalfont}
  \setlength{\abstitleskip}{0em}
\else
  \if@twocolumn
```

Values for the twocolumn class option.

```
    \if@bsonecol
      \setlength{\absleftindent}{\leftmargin}
    \else
      \setlength{\absleftindent}{\z@}
      \renewcommand{\abstractnamefont}{\normalfont\Large\bfseries}
      \renewcommand{\abstracttextfont}{\normalfont}
      \renewcommand{\absnamepos}{flushleft}
      \setlength{\abstitleskip}{0em}
    \fi
  \else
```

Values for the default, if not already initialised.

```
    \setlength{\absleftindent}{\leftmargin}
  \fi
\fi
```

Finally, values that apply for all cases.

```
\setlength{\absrightindent}{\absleftindent}
\AtBeginDocument{\setlength{\absparindent}{\parindent}
                 \setlength{\absparsep}{\parskip}}
```

`@bstr@ctlist` (*env.*) The abstract's text is typeset within the `@bstr@ctlist` list environment.

```
\newenvironment{@bstr@ctlist}{%
  \list{}{%
          %%\topsep        \z@
          \partopsep     \z@
          \listparindent \absparindent
          \itemindent    \listparindent
          \leftmargin    \absleftindent
          \rightmargin   \absrightindent
          \parsep        \absparsep}%
  \item\relax}
  {\endlist}
```

`\put@bsintoc` This macro adds the abstract's title to the ToC. It does nothing if the abstract is being numbered.

```
\newcommand{\put@bsintoc}{%
  \ifadd@bstotoc
    \ifnumber@bs\else
      \@ifundefined{chapter}{\addcontentsline{toc}{section}{\abstractname}}{%
                             \addcontentsline{toc}{chapter}{\abstractname}}
    \fi
  \fi}
```

(*End of definition for* `\put@bsintoc`.)

`\num@bs` This macro generates a numbered abstract heading.

```
\newcommand{\num@bs}{%
  \@ifundefined{chapter}{\section{\abstractname}}{%
                         \chapter{\abstractname}}
}
```

(*End of definition for* `\num@bs`.)

`\abstitlestyle` When the style option is called this macro is called to typeset the abstract heading; it should be redefined by the user to suit.

```
\newcommand*{\abstitlestyle}[1]{#1}
```

(*End of definition for* `\abstitlestyle`. *This function is documented on page 3.*)

`abstract` (*env.*) At last we are in position to redefine the `abstract` environment. This follows very much along the lines of the original definition, but with macros inserted at strategic points.

```
\if@titlepage
```

For the titlepage option.

```
  \renewenvironment{abstract}{%
    \titlepage
    \null\vfil
    \@beginparpenalty\@lowpenalty
    \if@bsrunin
    \else
```

If the runin option is not used: number the title, if called for, otherwise typeset the title in the specified (via `\absnamepos`) environment and adjust the following vertical spacing.

```
      \if@bsstyle
        \abstitlestyle{\abstractname}
      \else
        \ifnumber@bs
          \num@bs
        \else
          \begin{\absnamepos}%
            \abstractnamefont \abstractname
            \@endparpenalty\@M
          \end\absnamepos%
%%        \vspace{\abstitleskip}%
        \fi
      \fi
      \vspace{\abstitleskip}%
    \fi
```

Try adding the title to the ToC, then start the environment for typesetting the text. If the runin option is used, typeset the heading at the start of the environment.

```
    \put@bsintoc%
    \begin{@bstr@ctlist}\if@bsrunin\@bsrunintitle\fi\abstracttextfont}%
```

Finish the `abstract` environment.

```
    {\par\end{@bstr@ctlist}\vfil\null\endtitlepage}
\else
```

The twocolumn option and the default case. These use the same code as any style differences are embedded in the new macros.

```
  \renewenvironment{abstract}{%
    \if@bsrunin
    \else
      \if@bsstyle
        \abstitlestyle{\abstractname}
      \else
        \ifnumber@bs
          \num@bs
        \else
          \begin{\absnamepos}\abstractnamefont\abstractname\end\absnamepos%
%%        \vspace{\abstitleskip}%
        \fi
      \fi
      \vspace{\abstitleskip}%
    \fi
    \put@bsintoc%
```

```
    \begin{@bstr@ctlist}\if@bsrunin\@bsrunintitle\fi\abstracttextfont}%
    {\par\end{@bstr@ctlist}}
\fi
```

onecolabstract (*env.*) An environment for typesetting a single column abstract, particularly as the optional argument to the `\twocolumn` command.

```
\newenvironment{onecolabstract}{%
  \begin{@twocolumnfalse}\begin{abstract}}{%
  \end{abstract}\end{@twocolumnfalse}}
```

`\appendiargdef` `\appendiargdef{\macro}{Additional stuff}` will add `Additional stuff` at the end of the definition of `\macro`, where `\macro` is a macro that has one argument.[4]

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

(*End of definition for* `\appendiargdef`. *This function is documented on page 4.*)

`\thanks` `\@bs@thanks` We have to keep the contents of the `\thanks` commands as normally these are emptied by the `\maketitle` command. I do this by extending the definition of the `\thanks` (from `ltsect.dtx`) command, so that `\@bs@thanks` has a copy of the contents of `\@thanks`.

```
\appendiargdef{\thanks}{%
  \protected@xdef\@bs@thanks{\@bs@thanks
    \protect\footnotetext[\the\c@footnote]{#1}}%
}
\let\@bs@thanks\@empty
```

(*End of definition for* `\thanks` *and* `\@bs@thanks`.)

`\saythanks` This macro typesets any `\thanks` commands *after* using `onecolabstract`.

```
\newcommand{\saythanks}{\begingroup
  \renewcommand{\thefootnote}{\fnsymbol{footnote}}\@bs@thanks
  \endgroup\global\let\@bs@thanks\@empty}
```

(*End of definition for* `\saythanks`. *This function is documented on page 3.*)

The end of this package.

```
⟨/usc⟩
```

References

[GMS94] Michel Goossens, Frank Mittelbach, and Alexander Samarin. *The LaTeX Companion*. Addison-Wesley Publishing Company, 1994.

[4] Code suggestions for this were made by Michael Downes (`epsmjd@ams.org`) and Heiko Oberdiek (`oberdiek@ruf.uni-freiburg.de`) on `ctt`.

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