If you want to report any bugs or typos and corrections in the documentation, or ask for any new features, or suggest any improvements, or ask any questions about the package, then please use the issue tracker:

https://github.com/kvafa/bidi/issues

In doing so, please always explain your issue well enough, and always include a minimal working example showing the issue.

You may also have conversations, ask questions and post answers without opening issues using the Discussions space:

https://github.com/kvafa/bidi/discussions

The announcements for the new releases of the package will also appear in the Discussions space under the Announcements category.

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The *bidi* Package

Bidirectional typesetting in plain \TeX{} and \LaTeX{},
using Xe\TeX{} engine

User documentation for version 39.5

Vafa Khalighi

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\*Thanks to the bidi-tex GitHub organization consisted of David Carlisle and other members of the \TeX{} team to maintain the package in the period 2018–2020.
# Introduction

*bidi* provides a convenient interface for typesetting bidirectional texts in plain TeX and \LaTeX, using the Xe\TeX engine.

## bidi Info On The Terminal and In The Log File

If you use *bidi* package to write any input TeX document, and then run `xelatex` on your document, *bidi* writes some information about itself to the terminal and to the log file. The information is something like:

****************************************************
* bidi package (Bidirectional typesetting in
* plain TeX and \LaTeX, using Xe\TeX engine)
* Description: A convenient interface for
* typesetting bidirectional texts in plain TeX
* and \LaTeX. The package includes adaptations
* for use with many other commonly-used packages.
* Copyright (c) 2007--2022 Vafa Khalighi
* Copyright (c) 2018--2020 bidi-tex GitHub Organization
* v39.5, 2022/09/22
* License: \LaTeX Project Public License, version
* 1.3c or higher (your choice)
* Location on CTAN: /macros/xetex/latex/bidi
* Issue tracker: https://github.com/kvafa/bidi/issues
****************************************************
Part I
\LaTeX\ Manual

1 Basics

1.1 Loading The Package

You can load the package in the ordinary way;

\usepackage[Options]{bidi}

Where options of the package are explained later in subsection 1.5.

When loading the package, it is important to know that:

- bidi should be the last package that you load, because otherwise you are certainly going to overwrite bidi's definitions and consequently, you will not get the expected output.

- In fact, bidi makes sure that some specific packages are loaded before bidi; these are those packages that bidi modifies them for bidirectional typesetting.

  If you load bidi before any of these packages, then you will get an error saying that you should load bidi as your last package.

  For instance, consider the following minimal example:

  \begin{verbatim}
  \documentclass{minimal}
  \usepackage{bidi}
  \usepackage{graphicx}
  \begin{document}
  This is just a test.
  \end{document}
  \end{verbatim}

  Where graphicx is loaded after bidi. If you run xelatex on this document, you will get an error which looks like this:

  \begin{verbatim}
  ! Package bidi Error: Oops! you have loaded package graphicx after bidi package. Please load package graphicx before bidi package, and then try to run xelatex on your document again.

  See the bidi package documentation for explanation. Type H <return> for immediate help.
  ...
  1.4 \begin{document}
  \end{verbatim}

  ?
1.2 \textit{bidi}'s Symbol

As you may know lion symbolizes \TeX{} but lion does not symbolizes \textit{bidi}. \textit{Simorgh} (shown on the first page of this documentation) symbolizes \textit{bidi}.

1.3 \textbf{Commands for Version number, and Date of The Package}

\begin{itemize}
  \item \texttt{\textbackslash bidiversion}\texttt{\textbackslash bididate}
\end{itemize}

\textit{\texttt{\textbackslash bidiversion} gives the current version of the package.}

\textit{\texttt{\textbackslash bididate} gives the current date of the package.}

\begin{verbatim}
\documentclass[article]
\usepackage{bidi}
\begin{document}
This is typeset by \texttt{\textsf{bidi}} package, \texttt{\textbackslash bidiversion}, \texttt{\textbackslash bididate}.
\end{document}
\end{verbatim}

1.4 Turning TeX--XeT features on and off

The bidirectional typesetting in Xe\TeX{} is based on TeX--XeT algorithm and \textit{bidi} package automatically turns the feature on for typesetting bidirectional texts. As the internal data structures built by TeX--XeT differ from those built by \TeX{}, the typesetting of a document by TeX--XeT may therefore differ from that performed by \TeX{}. So you may notice that some packages behave differently when TeX--XeT feature is on and you may want to turn the feature off for a part of the text so that you get the default behaviour of original \TeX{}. Two commands are provided for this purpose:

\begin{itemize}
  \item \texttt{\textbackslash TeXXeTOn}\texttt{\textbackslash TeXXeTOff}
\end{itemize}

\textit{\texttt{\textbackslash TeXXeTOn} turns TeX--XeT feature on, which is active by default when \textit{bidi} package is loaded.}

\textit{\texttt{\textbackslash TeXXeTOff} turns TeX--XeT feature off.}

1.5 Options of The Package

There are three options, namely \texttt{RTLdocument} and \texttt{rldocument}, which are essentially equivalent. If you pass any of these options to the package, you will be typesetting a document containing mainly RTL texts with some LTR texts. These options activate \texttt{\textbackslash setRTL} (explained in \textit{subsection 5.4}), \texttt{\textbackslash RLtabular} (explained in \textit{subsection 1.10}) and \texttt{\textbackslash autofootnoterule} (explained in \textit{subsubsection 1.9.1}).

It is clear that if you do not pass any of these options to the package, you will be typesetting a document containing mainly LTR texts with some RTL texts.

There is also \texttt{extrafootnotefeatures} option that allows footnotes to be typeset in different formats:

\footnote{\textit{Simorgh} is an Iranian benevolent, mythical flying creature which has been shown on the titlepage of this documentation. For more details see \url{http://en.wikipedia.org/wiki/Simurgh}}
\normalfootnotes \twocolumnfootnotes \threecolumnfootnotes \fourcolumnfootnotes \fivecolumnfootnotes \sixcolumnfootnotes \sevencolumnfootnotes \eightcolumnfootnotes \ninecolumnfootnotes \tencolumnfootnotes \paragraphfootnotes

\normalfootnotes typesets footnotes in Standard \LaTeX{} format.
\twocolumnfootnotes to \tencolumnfootnotes, typeset footnotes in two-columns to ten-columns, respectively.
\paragraphfootnotes typesets footnotes in paragraph format.

Please note that when using extrafootnotefeatures option, the footnote rule will be as wide as the text width and \autofootnoterule, \rightfootnoterule, \leftfootnoterule, and \textwidthfootnoterule commands have no effects.

Please also note that if you redefine \baselinestretch command or change the value of \baselineskip primitive before \paragraphfootnotes command, then you may get Arithmetic Overflow error. You should change these after using \paragraphfootnotes command.

1.6 Paragraph Switching Commands

\setLTR \setLR \unsetRL \unsetRTL \setRTL \setRL \unsetLTR

With any of the commands in the first row, you can typeset LTR paragraphs.

With any of the commands in the second row, you can typeset RTL paragraphs.

\documentclass{article}
\usepackage{bidi}
\begin{document}
\setRTL
Anyone who reads Old and Middle English literary texts will be familiar with the mid-brown volumes of the EETS, with the symbol of Alfred's jewel embossed on the front cover.
\setLTR % Notice the blank line before \setLTR
Anyone who reads Old and Middle English literary texts will be familiar with the mid-brown volumes of the EETS, with the symbol of Alfred's jewel embossed on the front cover.
\end{document}

1.7 Paragraph Switching Environments

\begin{LTR} ⟨text⟩ \end{LTR}
\begin{RTL} ⟨text⟩ \end{RTL}

With LTR environment, you can typeset LTR paragraphs.
With RTL environment, you can typeset RTL paragraphs.

\documentclass{article}
\usepackage{bidi}
\begin{document}
\begin{RTL}
Anyone who reads Old and Middle English literary texts will be familiar with the mid-brown volumes of the EETS, with the symbol of Alfred's jewel embossed on the front cover.
\end{LTR}
\end{RTL}
\end{document}

1.8 Typesetting Short LTR and RTL Texts

With any of the commands in the first row, you can typeset short LTR text inside RTL paragraphs.

With any of the commands in the second row, you can typeset short RTL text inside LTR paragraphs.

\begin{document}
\begin{RTL}
\begin{LR}{⟨text⟩} \end{LR}
\begin{RL}{⟨text⟩} \end{RL}
\end{RTL}
\end{document}
1.9 Footnotes

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>\footnote{num}{⟨text⟩}</code></td>
<td>Produces an RTL footnote in RTL mode and an LTR footnote in LTR mode.</td>
</tr>
<tr>
<td><code>\LTRfootnote{num}{⟨text⟩}</code></td>
<td>Always produces an LTR footnote, independent of the current mode.</td>
</tr>
<tr>
<td><code>\RTLfootnote{num}{⟨text⟩}</code></td>
<td>Always produces an RTL footnote, independent of the current mode.</td>
</tr>
<tr>
<td><code>\setfootnoterL</code></td>
<td>Makes all future \footnotes RTL.</td>
</tr>
<tr>
<td><code>\setfootnoterLR</code></td>
<td>Makes all future \footnotes RTL.</td>
</tr>
<tr>
<td><code>\unsetfootnoterL</code></td>
<td>Resets to the previous \footnote mode.</td>
</tr>
<tr>
<td><code>\thanks{⟨text⟩}</code></td>
<td>Produces an RTL footnote in RTL mode and an LTR footnote in LTR mode.</td>
</tr>
<tr>
<td><code>\LTRthanks{⟨text⟩}</code></td>
<td>Always produces an LTR footnote, independent of the current mode.</td>
</tr>
<tr>
<td><code>\RTLthanks{⟨text⟩}</code></td>
<td>Always produces an RTL footnote, independent of the current mode.</td>
</tr>
<tr>
<td><code>\footnotetext{num}{⟨text⟩}</code></td>
<td>Used in conjunction with \footnotemark, produces an RTL footnote in RTL mode and an LTR footnote in LTR mode.</td>
</tr>
<tr>
<td><code>\LTRfootnotetext{num}{⟨text⟩}</code></td>
<td>Always produces an LTR footnote, independent of the current mode.</td>
</tr>
<tr>
<td><code>\RTLfootnotetext{num}{⟨text⟩}</code></td>
<td>Always produces an RTL footnote, independent of the current mode.</td>
</tr>
</tbody>
</table>

1.9.1 Footnote Rule

The behavior of footnote rules can also be controlled.

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>\autofootnoterule</code></td>
<td>Draws the footnote rule right or left aligned based on the direction of the first footnote following the rule.</td>
</tr>
<tr>
<td><code>\rightfootnoterule</code></td>
<td></td>
</tr>
<tr>
<td><code>\leftfootnoterule</code></td>
<td></td>
</tr>
<tr>
<td><code>\LRfootnoterule</code></td>
<td></td>
</tr>
<tr>
<td><code>\textwidthfootnoterule</code></td>
<td></td>
</tr>
<tr>
<td><code>\SplitFootnoteRule</code></td>
<td></td>
</tr>
<tr>
<td><code>\debugfootnotedirection</code></td>
<td></td>
</tr>
</tbody>
</table>

`\autofootnoterule` will draw the footnote rule right or left aligned based on the direction of the first footnote following the rule (i.e., put in the current page).
\textwidthfootnoterule will draw the footnote rule with a width equal to \textwidth.

\SplitFootnoteRule puts a full-width rule above the split-off part of a split footnote.

\debugfootnotedirection writes the direction of the first footnote on each page, in the log file.

1.10 Two Column Typesetting

\RTLdblcol  \LTRdblcol

If you pass the twocolumn option to the class file and if the main direction of the document is RTL, then you get RTL two column and if the main direction of the document is LTR, then you get LTR two column. In addition, \RTLdblcol allows you to have RTL two column typesetting and \LTRdblcol allows you to have LTR two column typesetting as the options of the class file.

Also please note that in twocolumn documents, the width of the \footnoterule will be equal to \columnwidth no matter which footnote-rule commands you use; indeed, in twocolumn documents only \textwidthfootnoterule is active and other footnote-rule commands will not be effective.

1.11 RTL cases

\RTLcases\{\text{⟨brach1⟩}\cr\text{⟨brach2⟩}\cr\text{⟨brach3⟩}…\cr\text{⟨main⟩}\}

\RTLcases is defined in bidi for typesetting RTL cases. \text is defined in amsmath package, so this means that you need to load amsmath package too.

1.12 Typesetting Logos

\XeTeX  \XeLaTeX

bidi defines Xe\TeX and Xe\LaTeX logos and in addition, it makes sure that logos, \TeX, \LaTeX, \LaTeXe are typeset LTR.
### 1.13 Separation Mark

\[\texttt{\textbackslash SepMark\{\langle mark\rangle\} \textbackslash@SepMark}\]

Generally in Standard \LaTeX, dot is used for separation between section numbers, equation numbers any anything else which needs to be separated. You can use \texttt{\textbackslash SepMark} to use any other mark as the separation mark instead a dot.

\begin{verbatim}
\documentclass{article}
\usepackage{bidi}
\SepMark{-}
\begin{document}
\section{First}
\subsection{Second}
\subsubsection{Third}
\end{document}
\end{verbatim}

If you decide to change the numbering of chapters, sections, subsections, equations, figures and ..., you should either load amsmath package and use \texttt{\textbackslash numberwithin} macro to do this or do the ordinary way, but instead dot write \texttt{\textbackslash@SepMark}. Using dot instead \texttt{\textbackslash@SepMark} will certainly make trouble.

\begin{verbatim}
\documentclass{article}
\usepackage{bidi}
\SepMark{-}
\makeatletter
\renewcommand{\theequation}{\thesection\@SepMark\@arabic\c@equation}
\makeatother
\begin{document}
\section{First}
\begin{equation}
x^2+y^2=z^2
\end{equation}
\end{document}
\end{verbatim}

### 1.14 \texttt{\textbackslash raggedright, \textbackslash raggedleft commands, flushleft and flushright} Environments

\texttt{\textbackslash raggedright} command and \texttt{\textbackslash flushleft} environment put the text on the left hand side and \texttt{\textbackslash raggedleft} command and \texttt{\textbackslash flushright} environment put the text on the right hand side, independent on the current mode.

### 1.15 Primitive-like commands

\[\texttt{\hboxR \hboxL \vboxR \vboxL}\]

*\texttt{\hboxR} The syntax of \texttt{\hboxR} is exactly the same as the syntax of \texttt{\hbox}, but its contents is always typeset RTL.

*\texttt{\hboxL} The syntax of \texttt{\hboxL} is exactly the same as the syntax of \texttt{\hbox}, but its contents is always typeset LTR.
The syntax of \vboxR is exactly the same as the syntax of \vbox, but its contents is always typeset RTL.

The syntax of \vboxL is exactly the same as the syntax of \vbox, but its contents is always typeset LTR.

### 1.16 Something To know about \hbox

If you enable RTL typesetting and typeset an horizontal box at the beginning of the document:

```latex
\documentclass{article}
\usepackage{bidi}
\setRTL
\begin{document}
\hbox{This is a Test}
\end{document}
```

You see that even you have used \setRTL, the horizontal box appears LTR (It appears on the left hand side and its content is typeset left to right). This is because when \TeX\ starts, it is in the vertical mode so if you need to have that \hbox appear RTL, then write \leavevmode before \hbox:

```latex
\documentclass{article}
\usepackage{bidi}
\setRTL
\begin{document}
\leavevmode\hbox{This is a Test}
\end{document}
```

### 1.17 \bidillap and \bidirlap Commands

In RTL mode, \llap and \rlap do opposite things. Since these two macros are used in a lot of classes and packages, instead modifying these two macros, we have created two new macros \bidillap and \bidirlap which give logical results.

### 1.18 LTRitems and RTLitems Environments

If you typeset an itemize, or an enumerate, or a description environment where all \item are one directional, you have no problem at all as shown below:

```latex
\documentclass{article}
\begin{document}
Anyone who reads Old and Middle English literary texts will be familiar with the mid-brown volumes of the EETS, with the symbol of Alfred’s
\begin{enumerate}
\item Anyone who reads Old and Middle English literary texts will be familiar with the mid-brown volumes of the EETS, with the symbol of Alfred’s
\item Anyone who reads Old and Middle English literary texts will be familiar with the mid-brown volumes of the EETS, with the symbol of Alfred’s
\end{enumerate}
\end{document}
```
However if the above example becomes bidirectional, as shown below:

```
\documentclass{article}
\usepackage{bidi}
\begin{document}
  Anyone who reads Old and Middle English literary texts will be familiar with the mid-brown volumes of the EETS, with the symbol of Alfred's
\begin{enumerate}
  \item Anyone who reads Old and Middle English literary texts will be familiar with the mid-brown volumes of the EETS, with the symbol of Alfred's
  \setRTL
  \item Anyone who reads Old and Middle English literary texts will be familiar with the mid-brown volumes of the EETS, with the symbol of Alfred's
\end{enumerate}
\end{document}
```

Then some people may argue that this typographically does not look promising. For this purpose, \texttt{RTLitems} environment is provided which has the following syntax:

```
\begin{RTLitems}
  \item ⟨text⟩
  ...
\end{RTLitems}
```

By using the \texttt{RTLitems} environment, the previous example will look like the following:

```
\begin{RTLitems}
  \item ⟨text⟩
  ...
\end{RTLitems}
```

Similarly, \texttt{LTRitems} environment is defined which has the following syntax:

```
\begin{LTRitems}
  \item ⟨text⟩
  ...
\end{LTRitems}
```
1.19 **LTRbibitems and RTLbibitems Environments**

The syntax of LTRbibitems and RTLbibitems environments is exactly like the syntax of LTRitems and RTLitems environments but there are few differences:

- LTRitems and RTLitems environments should only be used for list-like environments (such as itemize, enumerate and description environments) but LTRbibitems and RTLbibitems environments should only be used for thebibliography environment.

- Clearly instead of \item, you have \bibitem inside LTRbibitems and RTLbibitems environments.

1.20 \setLTRbibitems, \setRTLbibitems, and \setdefaultbibitems commands

| \setLTRbibitems | \setRTLbibitems | \setdefaultbibitems |

- If your whole thebibliography environment is inside RTL mode, but all your \bibitems are LTR and you actually want to have \bibname to appear on the RHS, you can use \setLTRbibitems command before thebibliography environment.

- If your whole thebibliography environment is inside LTR mode, but all your \bibitems are RTL and you actually want to have \bibname to appear on the LHS, you can use \setRTLbibitems command before thebibliography environment.

- \setdefaultbibitems is the default, when your \bibitems are a mixture of LTR and RTL and it does not matter what mode (LTR or RTL) your thebibliography environment is in. Please note that you do not have to use \setdefaultbibitems command in this case at all.

Consider an example that your thebibliography environment is inside LTR mode and you have, say two \bibitems. The first \bibitem is LTR and the second \bibitem is RTL. One could typeset this scenario as shown below:

```latex
\documentclass{article}
\usepackage{bidi}
\begin{document}
\begin{thebibliography}{99}
\bibitem This is the first bibitem which is LTR.
\begin{RTLbibitems}
\bibitem This is the second bibitem which is RTL.
\end{RTLbibitems}
\end{thebibliography}
\end{document}
```

1.21 **Typesetting margin par**

By default, in RTL mode, \marginpar appears on LHS and its content is typeset RTL and in LTR mode, \marginpar appears on RHS and its content is typeset LTR. In addition, the following commands are provided:
\setRTLmarginpar \setLTRmarginpar \setdefaultmarginpar
\LTRmarginpar [(left-text)] {(right-text)}
\RTLmarginpar [(left-text)] {(right-text)}

\setRTLmarginpar always makes \marginpar to appear on LHS and the content of \marginpar is typeset RTL (this is independent of the current mode).

\setLTRmarginpar always makes \marginpar to appear on RHS and the content of \marginpar is typeset LTR (this is independent of the current mode).

\setdefaultmarginpar gives the default behaviour of \marginpar as described above.

\LTRmarginpar typesets ⟨left-text⟩ and ⟨right-text⟩ always LTR.

\RTLmarginpar typesets ⟨left-text⟩ and ⟨right-text⟩ always RTL.

In RTL mode, places of ⟨left-text⟩ and ⟨right-text⟩ swaps.

1.22 Typesetting of Headers and Footers

If the main direction of the document is RTL, then headers and footers are typeset RTL and if the main direction of the document is LTR, then headers and footers are typeset LTR.

1.23 Tabular Typesetting

In RTL mode, tabular are typeset RTL and in LTR mode, tabular are typeset LTR.

1.24 Equation Numbers

For reqno, equation numbers are on the right hand side and for leqno, equation numbers are on the left hand side, independent on the current mode.

2 Support For Various Packages and Classes

The bidi package supports amsmath, amstext, amsthm, array, arodshl, breqn, cals, caption, color, colortbl, crop, cuted, cutwin, dbfnote draftwatermark, empheq, fancyhdr, fancybox, fix2col, float, floatrow, flowfram, framed, fnright, geometry, graphicx, hvfloat, hyperref, lettrine, listings, mdframed, midfloat, minitoc, multicoll, multienum, newfloat, pdfpages, pstricks, quotchap, picinpar, ragged2e, rotating, sidecap, stabular, subfig, subfigure, supertabular, xtab, tabls, tabulary, PGF & TiKZ, tocbibind, tocloft, tocstyle, wrapfig, xcolor, xltextra packages, amsart, amsbook, artikel1, artikel2, artikel3, extarticle, flashcards, standalone article, boek, boek3, standard book, bookext, extbook, extletter, scrlettr, standard letter, memoir, extreport, rapport1, rapport3, refrep, standard report, scrartcl, sbbook, scribepr classes and any other packages and classes that relies on these packages and classes. This means, you can use all these packages and classes in addition to other packages and classes that rely on these packages and classes and use their functionality fully for your bidirectional documents.

We now give some details that you should know about the supported packages or classes.
2.1 Color
You can use \texttt{color} and \texttt{xcolor} packages to typeset texts in colours and colour boxes produced by \texttt{\colorbox} and \texttt{\fcolorbox} commands. Please note that your coloured text should not span more than a line, if your text spans more than a line, you will be in trouble which means your whole document, page or paragraph may be coloured. If your texts spans more than a line, then you should use \texttt{xcolor} package. Also if you are going to use \texttt{\color} command to colour the text at the beginning of a paragraph, then you should have \texttt{\leavevmode} before \texttt{\color} command. For having coloured tabular, you can use \texttt{colortbl} package.

2.2 The \texttt{dblfnote} package
The \texttt{dblfnote} package makes footnotes double-columned. In addition \texttt{bidi} package adds bidirectional support for the \texttt{dblfnote} package by providing the following commands:

\begin{verbatim}
\RTLdfnmakecol \LTRdfnmakecol
\end{verbatim}

-\RTLdfnmakecol makes footnotes double-columned RTL.
-\LTRdfnmakecol makes footnotes double-columned LTR.

If the main direction of the document is RTL, \texttt{\RTLdfnmakecol} is active and if the main direction of the document is LTR, \texttt{\LTRdfnmakecol} is active.

Please note that when using \texttt{dblfnote} package, the footnote rule will be as wide as the footnote column and \texttt{\autofootnoterule}, \texttt{\rightfootnoterule}, \texttt{\leftfootnoterule}, and \texttt{\textwidthfootnoterule} commands have no effects.

2.3 Hyperref
The \texttt{hyperref} package works fine with bidirectional documents if and only if, your link will not span more than a line. If your link spans more than a line, then your whole document, or page or paragraph may be linked.

2.4 The \texttt{listings} package
Suppose that the main direction of the document is RTL, and you want to typeset a piece of C code in LTR mode but you also have the requirement that the caption of that particular code should be RTL. Since the direction of the code is LTR, then the direction of the caption also will be LTR and this is not something you want; sadly there is no easy way to do this. For this very reason, the \texttt{bidi} package adds a key to the \texttt{listings} package, namely \texttt{captiondirection}. This key can have the following values:

-\texttt{textdirection} follows the direction of the text (default).
-\texttt{RTL} sets the direction of the caption to RTL.
-\texttt{LTR} sets the direction of the caption to LTR.

Giving any other values gives you an error.
2.5 **flowfram Package**

You can use *flowfram* package for your bidirectional documents. Please note that *flowfram* package provides support for bidirectional column typesetting, for details, see its manual.

2.6 **Multicolumn Typesetting**

In the previous versions of *bidi* package, it was recommended that you need to use *fmultico* package instead the original *multicol* package for RTL multicolumn typesetting. This is not the case any more and you should not use buggy *fmultico* package any more. Simply load the original *multicol* package before loading *bidi*. *bidi* now supports *multicol* package and you can typeset bidirectional multi columns. When using *multicol* package, the following two additional commands are provided:

\begin{verbatim}
\RTLmulticolcolumns \LTRmulticolcolumns
\end{verbatim}

If the main direction of the document is RTL, then you get RTL multi columns and if the main direction of the document is LTR, then you get LTR multi columns. In addition, \begin{verbatim}\RTLmulticolcolumns\end{verbatim} allows you to have RTL multi columns and \begin{verbatim}\LTRmulticolcolumns\end{verbatim} allows you to have LTR multi columns.

In addition, you also can use *vwcol* package for variable width bidirectional column typesetting.

3 **Extra bidi Packages and Classes**

3.1 **biditufte bundle**

A modified version of *tufte-latex*, *biditufte* bundle, mainly for RTL typesetting, is provided. If you never used *biditufte* bundle or *tufte-latex* package and you want to use *biditufte* bundle, then you need to look at *tufte-latex* package's manual and examples. In addition, for using *biditufte* bundle, you need to know the following notes:

- You need to use *biditufte-book* class instead *tufte-book* class and *biditufte-handout* class instead *tufte-handout* class.
- *biditufte* bundle provides the following extra commands:

\begin{verbatim}
\LTRsidenote \RTLsidenote \LTRmarginnote \RTLmarginnote
\end{verbatim}

- *biditufte* bundle unlike *tufts-latex* package, only provides justified lines.

- Some features of *tufte-latex* that does not make any sense in RTL, do not exist in *biditufte* bundle (no need for soul, letterspace and macrotype packages).

- If you want to configure *biditufte-book* class for your own needs, then you can create a file with the name *biditufte-book.cfg* and put your *\LaTeX* macros in that file; similarly, if you want to configure *biditufte-handout* class for your own needs, then you can create a file with the name *biditufte-handout.cfg* and put your *\LaTeX* macros in that file.
3.2 Typesetting \TeX{} and \LaTeX{} Codes

The \LaTeX{} codes in this manual are typeset using the bidicode package. In standard \LaTeX{} you can not use footnotes inside \texttt{\chapter}, \texttt{\part}, \texttt{\section}, \texttt{\subsection}, \texttt{\subsubsection} and any other section-like commands, \texttt{\caption} and tabular environment. \texttt{bidi} package provides \texttt{bidi\texttt{nxtra}} package that solves the issue of footnote in standard \LaTeX{}. \texttt{bidi\texttt{nxtra}} package should be loaded after \texttt{bidi} package.

3.3 Typesetting Poems

The \texttt{bidi} package provides \texttt{bidipoem} package for typesetting Persian poems. It provides four environments, \texttt{traditionalpoem}, \texttt{modernpoem} and starred version of these. In the starred version of these environments you do not need to type \texttt{\textbackslash} and that is the only difference with the normal version of the environments. The \texttt{traditionalpoem} environment and its starred version are also useful for typesetting Classic Arabic poetry, in fact this package may also be useful for other RTL languages.

When using \texttt{bidipoem} package, at least you need to run \texttt{xelatex} twice on your document. In fact, if you run \texttt{xelatex} just once on your document, you get a message saying “Unjustified poem. Rerun \texttt{XeLaTeX} to get poem right”. When you typeset your poems, you might get underfull \texttt{\hbox} messages. This is absolutely normal and if you want to get rid of these underfull \texttt{\hbox} messages, then you would need to use Kashida.

If you need to change the default distance between two verses, you can do just that by:

\begin{verbatim}
\renewcommand{\poemcolsepskip}{⟨length⟩}
\end{verbatim}

\begin{verbatim}
\begin{traditionalpoem}
⟨verse1⟩&⟨verse2⟩\\
⟨verse3⟩&⟨verse4⟩\\
…
\end{traditionalpoem}
\end{verbatim}

\begin{verbatim}
\begin{traditionalpoem*}
⟨verse1⟩&⟨verse2⟩
⟨verse3⟩&⟨verse4⟩
…
\end{traditionalpoem*}
\end{verbatim}

3.4 Typesetting Resumé

The \texttt{bidi} package provides \texttt{bidimoderncv} class for typesetting resumés. There are two examples, namely \texttt{test-casualcv.tex} and \texttt{test-classiccv.tex}, in the \texttt{doc} folder than you can look and learn how you can use it.

3.5 Print Two Pages On A Single Page

\texttt{bidi} package provides \texttt{bidi2in1} package for printing two pages on a single (landscape) A4 page. Page numbers appear on the included pages, and not on the landscape ‘container’ page.

\footnote{This class is the modified version of \texttt{moderncv} class.}
3.6 Producing Presentations

At the moment, there is only one class that you can prepare your presentations with.

4 Some Useful Internal Macros and Programming Tips

There are some useful internal macros and programming tips that might be helpful for you. This section explains all these useful internals and programming tips.

4.1 Equating Conditionals

\texttt{\textbackslash eqnewif\{\textbackslash newconditional1\}\{\textbackslash newconditional2\}}

In standard \LaTeX, \texttt{\newif} command is provided that you can define a new conditional with it. \texttt{\eqnewif} command is similar to \texttt{\newif} command but:

\begin{itemize}
  \item With \texttt{\eqnewif} command, you can define two new conditionals instead one, so clearly it has two mandatory arguments.
  \item \texttt{\newconditional1} will be identical to \texttt{\newconditional2}, so that whenever \texttt{\newconditional1} is true, then \texttt{\newconditional2} is also true and whenever \texttt{\newconditional1} is false, then \texttt{\newconditional2} is also false and vice versa.
\end{itemize}

4.2 RTL Conditional

\texttt{\if@RTL}

\texttt{\if@RTL} conditional is true inside RTL mode and it is false in LTR mode.

4.3 Main RTL Conditional

\texttt{\if@RTLmain}

If the main direction of the document is RTL, \texttt{\if@RTLmain} is true and if the main direction of the document is LTR, \texttt{\if@RTLmain} is false.

4.4 Latin Conditional

\texttt{\if@nonlatin}

The packages should set the value of \texttt{\if@nonlatin} inside any environment that uses LTR script to false (\texttt{\@nonlatinfalse}) and inside any environment that uses RTL script to true (\texttt{\@nonlatintrue}).

4.5 Tags Internal Macro

\texttt{\@iftagsloaded\{\texttt{\textbackslash tags\ name}\}\{\texttt{\textbackslash do\ thing(s)\ if\ the\ tag\ is\ loaded}\}}

As you can see, the syntax of \texttt{\@iftagsloaded} is exactly the same as the syntax of \texttt{\@ifpackageloaded} and \texttt{\@ifclassloaded}. By tags, we mean things like leqno or
reqno. Please note that in the argument *(tags name)*, the extension clo should not be given.

### 4.6 Definition File Loaded Internal Macro

\@ifdefinitionfileloaded{(definition file name)}
\{⟨do thing(s) if the definition file is loaded⟩\}
\{⟨do thing(s) if the definition file is not loaded⟩\}

As you can see, the syntax of \@ifdefinitionfileloaded is exactly the same as the syntax of \@ifpackageloaded and \@ifclassloaded. By definition file, we mean things like hyperref-bidi.def or wrapfig-bidi.def. Please note that in the argument *(definition file name)*, the extension def should not be given.

### 4.7 Tabular Conditional

\if@RTLtab

If the tabular is typeset RTL, \if@RTLtab is true and if the tabular is typeset LTR, \if@RTLtab is false.

### 4.8 Footnote Conditional

\if@RTL@footnote

When footnotes are typeset RTL, \if@RTL@footnote is true and when footnotes are typeset LTR, \if@RTL@footnote is false.

### 4.9 Direction Ensuring Macros

\@ensure@RTL{(text)} \@ensure@RL{(text)} \@ensure@LTR{(text)} \@ensure@LR{(text)} \@ensure@dir{(text)} \@ensure@maindir{(text)}

\\@ensure@RTL and \@ensure@RL internals make sure that ⟨text⟩ is always typeset RTL, independent on the current mode.

\\@ensure@LTR and \@ensure@LR internals make sure that ⟨text⟩ is always typeset LTR, independent on the current mode.

\\@ensure@dir and \@ensure@maindir if used in RTL mode, they put ⟨text⟩ inside \RLE and if used in LTR mode, they put the text as it is.

### 4.10 Reset Direction Macro

\save@dir \saved@@dir \reset@dir

\\save@dir, if the direction of typesetting is RTL, defines \saved@@dir to be RTL and if the direction of typesetting is LTR, defines \saved@@dir to be LTR.

\\reset@dir, if \saved@@dir is defined as RTL, inserts \setRTL otherwise, if \saved@@dir is defined as LTR, inserts \setLTR, otherwise does nothing.
Part II
Plain \TeX\ Manual

5 Basics

5.1 Loading The Package

You can load the package in the ordinary way;

```
\input bidi
```

When loading the package, it is important to know that: bidi should be the last package
that you load, because otherwise you are certainly going to overwrite bidi’s definitions and
consequently, you will not get the expected output.

5.2 Commands for Version number, and Date of The Package

```
\bidiversion \bididate
```

\verb|\bidiversion| gives the current version of the package.

\verb|\bididate| gives the current date of the package.

```
\input bidi
This is typeset by \textsf{bidi} package, \bidiversion, \bididate.
\end
```

5.3 Turning TeX--XeT features on and off

The bidirectional typesetting in Xe\TeX is based on TeX--XeT algorithm and bidi package
automatically turns the feature on for typesetting bidirectional texts. As the internal data
structures built by TeX--XeT differ from those built by \TeX, the typesetting of a document
by TeX--XeT may therefore differ from that performed by \TeX. So you may notice that
some packages behave differently when TeX--XeT feature is on and you may want to turn
the feature off for a part of the text so that you get the default behaviour of original \TeX.
Two commands are provided for this purpose:

```
\TeXeTON \TeXeTOFF
```

\verb|\TeXeTON| turns TeX--XeT feature on, which is active by default when bidi package
is loaded.

\verb|\TeXeTOFF| turns TeX--XeT feature off.
5.4 Paragraph Switching Commands

\setLTR \setLR \unsetRL \unsetRTL \\
\setRTL \setRL \unsetLTR

^\textit{\textcopyright} With any of the commands in the first row, you can typeset LTR paragraphs.

^\textit{\textcopyright} With any of the commands in the second row, you can typeset RTL paragraphs.

\input bidi
\setRTL
Anyone who reads Old and Middle English literary texts will be familiar with the mid-brown volumes of the EETS, with the symbol of Alfred's jewel embossed on the front cover.
\setLTR\textit{\textcopyright} Notice the blank line before \setLTR
Anyone who reads Old and Middle English literary texts will be familiar with the mid-brown volumes of the EETS, with the symbol of Alfred's jewel embossed on the front cover.
\end

5.5 Paragraph Switching Environments

\LTR \langle \text \rangle \endLTR \\
\RTL \langle \text \rangle \endRTL

^\textit{\textcopyright} With LTR environment, you can typeset LTR paragraphs.

^\textit{\textcopyright} With RTL environment, you can typeset RTL paragraphs.

\input bidi
\RTL
Anyone who reads Old and Middle English literary texts will be familiar with the mid-brown volumes of the EETS, with the symbol of Alfred's jewel embossed on the front cover.
\LTR
Anyone who reads Old and Middle English literary texts will be familiar with the mid-brown volumes of the EETS, with the symbol of Alfred's jewel embossed on the front cover.
\endLTR
And we are still typesetting right to left.
\endRTL
\end

5.6 Typesetting Short LTR and RTL Texts

\LRE\langle \text \rangle \ LR\langle \text \rangle \\
\RLE\langle \text \rangle \ RL\langle \text \rangle

^\textit{\textcopyright} With any of the commands in the first row, you can typeset short LTR text inside RTL paragraphs.
With any of the commands in the second row, you can typeset short RTL text inside LTR paragraphs.

\input bidi
\RTL
1
2
3
Anyone who reads Old and Middle English \LRE{Short left to right text} literary texts will be familiar with the mid-brown volumes of the EETS, with the symbol of Alfred’s jewel embossed on the front cover.
\LTR
1
2
3
Anyone who reads Old and Middle English \RLE{Short right to left text} literary texts will be familiar with the mid-brown volumes of the EETS, with the symbol of Alfred’s jewel embossed on the front cover.
\endLTR
\endRTL
\end

5.7 Primitive-like commands
\hboxR \hboxL \vboxR \vboxL

\hboxR The syntax of \hboxR is exactly the same as the syntax of \hbox, but its contents is always typeset RTL.

\hboxL The syntax of \hboxL is exactly the same as the syntax of \hbox, but its contents is always typeset LTR.

\vboxR The syntax of \vboxR is exactly the same as the syntax of \vbox, but its contents is always typeset RTL.

\vboxL The syntax of \vboxL is exactly the same as the syntax of \vbox, but its contents is always typeset LTR.

5.8 Something To know about \hbox

If you enable RTL typesetting and typeset an horizontal box at the beginning of the document:

\input bidi
\setRTL
1
2
3
\hbox{This is a Test}
4
\end

You see that even you have used \setRTL, the horizontal box appears LTR (It appears on the left hand side and its content is typeset left to right). This is because when \TeX starts, it is in the vertical mode so if you need to have that \hbox appear RTL, then write \leavevmode before \hbox:

\input bidi
\setRTL
1
2
3
\leavevmode\hbox{This is a Test}
4
\end
5.9 Typesetting Logos

\XeTeX

bidi defines Xe\TeX\ logo and in addition, it makes sure that the logo, \TeX\ is typeset LTR.

6 Some Useful Internal Macros and Programming Tips

There are some useful internal macros and programming tips that might be helpful for you. This section, explains all these useful internals and programming tips.

6.1 RTL Conditional

\if@RTL

The \if@RTL conditional is true inside RTL mode and it is false in LTR mode.

6.2 Main RTL Conditional

\if@RTLmain

If the main direction of the document is RTL, \if@RTLmain is true and if the main direction of the document is LTR, \if@RTLmain is false.

6.3 Direction Ensuring Macros

\@ensure@RTL{⟨text⟩} \@ensure@RL{⟨text⟩} \@ensure@LTR{⟨text⟩} \@ensure@LR{⟨text⟩} \@ensure@dir{⟨text⟩} \@ensure@maindir{⟨text⟩}

\@ensure@RTL and \@ensure@RL internals make sure that ⟨text⟩ is always typeset RTL, independent on the current mode.

\@ensure@LTR and \@ensure@LR internals make sure that ⟨text⟩ is always typeset LTR, independent on the current mode.

\@ensure@dir and \@ensure@maindir if used in RTL mode, they put ⟨text⟩ inside \RLE and if used in LTR mode, they put the text as it is.

6.4 Reset Direction Macro

\save@dir \saved@dir \reset@dir

\save@dir, if the direction of typesetting is RTL, defines \saved@dir to be RTL and if the direction of typesetting is LTR, defines \saved@dir to be LTR.

\reset@dir, if \saved@dir is defined as RTL, inserts \setRTL otherwise, if \saved@dir is defined as LTR, inserts \setLTR, otherwise does nothing.