The bidi *Package*

User documentation for version 36.3

to my Master, **Ferdowsi The Great**

The bidi *Package*

Bidirectional typesetting in plain TEX and LATEX, using XeTEX engine

User documentation for version 36.3

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Contents

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Introduction

bidi provides a convenient interface for typesetting bidirectional texts in plain TEX and LATEX, using the XeTEX 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 XeTeX 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--2020 Vafa Khalighi
* Copyright (c) 2018--2020 bidi-tex GitHub Organization
*
* v36.3, 2020/05/17
*
```

```
* License: LaTeX Project Public License, version
* 1.3c or higher (your choice)
*
* Location on CTAN: /macros/xetex/latex/bidi
*
* Issue tracker: https://github.com/persiantex/bidi/issues
*
* Primary author of bidi package: Vafa Khalighi.
*
****************************************************
```

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:

❶ 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.

❷ 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:

```
1 \documentclass{minimal}
2 \usepackage{bidi}
3 \usepackage{graphicx}
4 \begin{document}
5 This is just a test.
6 \end{document}
```

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

```
! 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.
 ...


l.4 \begin{document}


?
```

1.2   **bidi**'s Symbol

As you may know lion symbolizes TEX but lion does not symbolizes bidi. **Simorgh**[1] (shown on the first page of this documentation) symbolizes bidi.

1.3   Commands for Version number, and Date of The Package

\bidiversion   \bididate

☞ \bidiversion gives the current version of the package.

☞ \bididate gives the current date of the package.

```
1  \documentclass{article}
2  \usepackage{bidi}
3  \begin{document}
4  This is typeset by \textsf{bidi} package, \bidiversion, \bididate.
5  \end{document}
```

1.4   Turning TeX--XeT features on and off

The bidirectional typesetting in XeTEX 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:

---

[1] **Simorgh** is an Iranian benevolent, mythical flying creature which has been shown on the titlepage of this documentation. For more details see http://en.wikipedia.org/wiki/Simurgh

```
\TeXXeTOn   \TeXXeTOff
```

☞ \TeXXeTOn turns TeX--XeT feature on, which is active by default when bidi package
is loaded.

☞ \TeXXeTOff turns TeX--XeT feature off.

1.5   Options of The Package

There are three options, namely RTLdocument and rldocument, which are essentialy
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
\setRTL (explained in subsection 5.4), \RTLdblcol (explained in subsection 1.10) and
\autofootnoterule (explained in 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 extrafootnotefeatures option that allows footnotes to be typeset in dif-
ferent formats:

```
\normalfootnotes
\twocolumnfootnotes  \threecolumnfootnotes  \fourcolumnfootnotes
\fivecolumnfootnotes  \sixcolumnfootnotes  \sevencolumnfootnotes
\eightcolumnfootnotes  \ninecolumnfootnotes  \tencolumnfootnotes
\RTLcolumnfootnotes  \LTRcolumnfootnotes
\paragraphfootnotes
\setLTRparagraphfootnotes  \setRTLparagraphfootnotes
```

☞ \normalfootnotes typesets footnotes in Standard LaTeX format.

☞ \twocolumnfootnotes to \tencolumnfootnotes, typeset footnotes in two-columns
to ten-columns, respectively.

☞ \RTLcolumnfootnotes typesets footnotes columns RTL (first column on the RHS
and each next column to the left of the previous column) and \LTRcolumnfootnotes
typesets footnotes columns LTR (first column on the LHS and each next column to
the right of the previous column). \LTRcolumnfootnotes is active by default.

☞ \paragraphfootnotes typesets footnotes in paragraph format.

☞ \setLTRparagraphfootnotes makes footnotes run from left to right. This co-
mand is active by default.

☞ \setRTLparagraphfootnotes makes footnotes run from right to left.

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.

```
1 \documentclass{article}
2 \usepackage{bidi}
3 \begin{document}
4 \setRTL%
5 Anyone who reads Old and Middle English literary texts will be
6  familiar with the mid-brown volumes of the EETS, with the symbol
7  of Alfred's jewel embossed on the front cover.
8
9 \setLTR% Notice the blank line before \setLTR
10 Anyone who reads Old and Middle English literary texts will be
11  familiar with the mid-brown volumes of the EETS, with the symbol
12  of Alfred's jewel embossed on the front cover.
13 \end{document}
```

1.7 Pargraph 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.

```
1 \documentclass{article}
2 \usepackage{bidi}
3 \begin{document}
4 \begin{RTL}
5 Anyone who reads Old and Middle English literary texts will be familiar
6  with the mid-brown volumes of the EETS, with the symbol
7  of Alfred's jewel embossed on the front cover.
8 \begin{LTR}
9 Anyone who reads Old and Middle English literary texts will be familiar
```

```
10   with the mid-brown volumes of the EETS, with the symbol
11   of Alfred's jewel embossed on the front cover.
12  \end{LTR}
13  And we are still typesetting RTL.
14  \end{RTL}
15  \end{document}
```

1.8 Typesetting Short LTR and RTL Texts

```
\LRE{⟨text⟩}   \LR{⟨text⟩}
\RLE{⟨text⟩}   \RL{⟨text⟩}
```

☞ 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.

```
1   \begin{document}
2   \begin{RTL}
3   Anyone who reads Old and Middle English \LRE{Short LTR text} literary
    texts will be familiar
4    with the mid-brown volumes of the EETS, with the symbol
5    of Alfred's jewel embossed on the front cover.
6   \begin{LTR}
7   Anyone who reads Old and Middle English \RLE{Short RTL text} literary
    texts will be familiar
8    with the mid-brown volumes of the EETS, with the symbol
9    of Alfred's jewel embossed on the front cover.
10  \end{LTR}
11  \end{RTL}
12  \end{document}
```

1.9 Footnotes

```
\footnote [num] {⟨text⟩}   \LTRfootnote [num] {⟨text⟩}   \RTLfootnote [num] {⟨text⟩}
\setfootnoteRL  \setfootnoteLR  \unsetfootnoteRL
\thanks{⟨text⟩}   \LTRthanks{⟨text⟩}   \RTLthanks{⟨text⟩}
```

☞ \footnote in RTL mode produces an RTL footnote while in LTR mode it produces an LTR footnote.

☞ \LTRfootnote will always produce an LTR footnote, independent on the current mode.

- ☞ `\RTLfootnote` will always produce an RTL footnote, independent on the current mode.

- ☞ Specifying a `\setfootnoteRL` command anywhere will make `\footnote` produce an RTL footnote.

- ☞ Specifying either a `\setfootnoteLR` or an `\unsetfootnoteRL` command anywhere will make `\footnote` produce an LTR footnote.

- ☞ `\thanks` (to be used only inside `\author` or `\title` argument) in RTL mode produces an RTL footnote while in LTR mode it produces an LTR footnote.

- ☞ `\LTRthanks` (to be used only inside `\author` or `\title` argument) will always produce an LTR footnote, independent on the current mode.

- ☞ `\RTLthanks` (to be used only inside `\author` or `\title` argument) will always produce an RTL footnote, independent on the current mode.

`\footnotetext` [num] {⟨*text*⟩} `\LTRfootnotetext` [num] {⟨*text*⟩}
`\RTLfootnotetext` [num] {⟨*text*⟩}

- ☞ `\footnotetext` used in conjunction with `\footnotemark`, in RTL mode produces an RTL footnote while in LTR mode it produces an LTR footnote.

- ☞ `\LTRfootnotetext` used in conjunction with `\footnotemark`, will always produce an LTR footnote, independent on the current mode.

- ☞ `\RTLfootnotetext` used in conjunction with `\footnotemark`, will always produce an RTL footnote, independent on the current mode.

1.9.1 Footnote Rule

The behavior of footnote rules can also be controlled.

`\autofootnoterule` `\rightfootnoterule` `\leftfootnoterule`
`\LRfootnoterule` `\textwidthfootnoterule` `\SplitFootnoteRule`
`\debugfootnotedirection`

- ☞ `\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).

- ☞ `\rightfootnoterule` will put footnote rule on the right-hand side.

- ☞ `\leftfootnoterule` or `\LRfootnoterule` will put footnote rule on the left-hand side.

- ☞ `\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` command was previously known as `\rcases` command but since there was a clash with mathtools package (mathtools defines rcases environment), we had to rename `\rcases` command to `\RTLcases` command.

```
\RTLcases{\text{⟨brach1⟩}\cr\text{⟨brach2⟩}\cr\text{⟨brach3⟩}...}
\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 \documentclass{article}
2 \usepackage{amsmath}
3 \usepackage{bidi}
4 \begin{document}
5 \setRTL
6 \[\RTLcases{\text{men}\cr\text{women}}
7 \text{Humans Beings}
8 \]
9 \end{document}
```

1.12 Typesetting Logos

```
\XeTeX   \XeLaTeX
```

bidi defines XeTeX and XeLaTeX logos and in addition, it makes sure that logos, TeX, LaTeX, LaTeX 2_ε are typeset LTR.

1.13   Separation Mark

```
\SepMark{⟨mark⟩}   \@SepMark
```

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

```
1 \documentclass{article}
2 \usepackage{bidi}
3 \SepMark{-}
4 \begin{document}
5 \section{First}
6 \subsection{Second}
7 \subsubsection{Third}
8 \end{document}
```

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

```
1 \documentclass{article}
2 \usepackage{bidi}
3 \SepMark{-}
4 \makeatletter
5 \renewcommand\theequation{\thesection\@SepMark\@arabic\c@equation}
6 \makeatother
7 \begin{document}
8 \section{First}
9 \begin{equation}
10 x^2+y^2=z^2
11 \end{equation}
12 \end{document}
```

1.14   \raggedright, \raggedleft commands, flushleft and flushright Environments

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

1.15   Primitive-like commands

```
\hboxR   \hboxL   \vboxR   \vboxL
```

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

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

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

☞ The syntax of \vboxL is exatly 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:

```
1 \documentclass{article}
2 \usepackage{bidi}
3 \setRTL
4 \begin{document}
5 \hbox{This is a Test}
6 \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:

```
1 \documentclass{article}
2 \usepackage{bidi}
3 \setRTL
4 \begin{document}
5 \leavevmode\hbox{This is a Test}
6 \end{document}
```

1.17   \bidillap and \bidirlap Commands

In RTL mode, \llap and \rlap do oposite 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 \items are one directional, you have no problem at all as shown below:

```
1 \documentclass{article}
2 \begin{document}
3 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
4 \begin{enumerate}
```

```
5  \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
6  \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
7  \end{enumerate}
8  \end{document}
```

However if the above example becomes bidirectional, as shown below:

```
1   \documentclass{article}
2   \usepackage{bidi}
3   \begin{document}
4   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
5   \begin{enumerate}
6   \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
7   \setRTL
8   \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
9   \end{enumerate}
10  \end{document}
```

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

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

By using the RTLitems environment, the previous example will look like the following:

```
1  \documentclass{article}
2  \usepackage{bidi}
3  \begin{document}
4  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
5  \begin{enumerate}
6  \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
7  \begin{RTLitems}
8  \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
```

```
 9  \end{RTLitems}
10  \end{enumerate}
11  \end{document}
```

Similarly, 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 senario as shown below:

```
1  \documentclass{article}
2  \usepackage{bidi}
3  \begin{document}
```

```
4  \begin{thebibliography}{99}
5  \bibitem This is the first bibitem which is LTR.
6  \begin{RTLbibitems}
7  \bibitem This is the second bibitem which is RTL.
8  \end{RTLbibitems}
9  \end{thebibliography}
10 \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, arydshln, breqn, cals, caption, color, colortbl, crop, cuted, cutwin, dblfnote draftwatermark, empheq, fancy-hdr, fancybox, fix2col, float, floatrow, flowfram, framed, ftnright, geometry, graphicx, hvfloat, hyperref, lettrine, listings, mdframed, midfloat, minitoc, multicol, multienum, newfloat, pdfpages, pstricks, quotchap, picinpar, ragged2e, rotating, sidecap, stabu-lar, subfig, subfigure, supertabular, xtab, tabls, tabulary, PGF & TIKZ, tocbibind, tocloft, tocstyle, wrapfig, xcolor, xltxtra packages, amsart, amsbook, artikel1, artikel2, artikel3, extarticle, flashcards, standrad article, boek, boek3, standard book, bookest, extbook, extletter, scrlettr,standard letter, memoir, extreport, rapport1, rapport3, refrep, stan-dard report, scrartcl, scrbook, scrreprt classes and any other packages and classes that re-lies 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 color and xcolor packages to typeset texts in colours and colour boxes pro-duced by \colorbox and \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 trou-ble which means your whole document, page or paragraph may be coloured. If your texts spans more than a line, then you should use xecolor package.
Also if you are going to use \color command to colour the text at the beginning of a paragraph, then you should have \leavevmode before \color command.
For having coloured tabular, you can use colortbl package.

2.2 The **dblfnote** package

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

\RTLdfnmakecol   \LTRdfnmakecol

☞ \RTLdfnmakecol makes footnotes double-columned RTL.

☞ \LTRdfnmakecol makes footnotes double-columned LTR.

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

Please note that when using dblfnote package, the footnote rule will be as wide as the foot-note column and \autofootnoterule, \rightfootnoterule, \leftfootnoterule, and \textwidthfootnoterule commonds have no effects.

2.3 Hyperref

The 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 **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 bidi package adds a key to the listings package, namely `captiondirection`. This key can have the following values:

☞ `textdirection` follows the direction of the text (default).

☞ RTL sets the direction of the caption to RTL.

☞ 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 proveded:

```
\RTLmulticolcolumns   \LTRmulticolcolumns
```

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, \RTLmulticolcolumns allows you to have RTL multi columns and \LTRmulticolcolumns 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:

> `\LTRsidenote` `\RTLsidenote` `\LTRmarginnote` `\RTLmarginnote`

☞ 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 `\chapter`, `\part`, `\section`, `\subsection`, `\subsection` and any other section-like commands, `\caption` and tabular environment. bidi package provides bidiftnxtra package that solves the issue of footnote in standard LaTeX. bidiftnxtra package should be loaded after bidi package.

3.3 Typesetting Poems

The bidi package provides bidipoem package for typesetting Persian poems. It provides four environments, `traditionalpoem`, `modernpoem` and starred version of these. In the starred version of these environments you do not need to type \\ and that is the only difference with the normal version of the environments. The `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 bidipoem package, at least you need to run `xelatex` twice on your document. In fact, if you run `xelatex` just once on your document, you get a message saying "Unjustified poem. Rerun XeLaTeX to get poem right".

When you typeset your poems, you might get underfull \hbox messages. This is absolutely normal and if you want to get rid of these underfull \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:

```
\renewcommand\poemcolsepskip{⟨length⟩}
```

```
\begin{traditionalpoem}
⟨verse1⟩&⟨verse2⟩\\
⟨verse3⟩&⟨verse4⟩\\
...
\end{traditionalpoem}
```

```
\begin{traditionalpoem*}
⟨verse1⟩&⟨verse2⟩
⟨verse3⟩&⟨verse4⟩
...
\end{traditionalpoem*}
```

3.4 Typesetting Resumé

The bidi package provides bidimoderncv[2] class for typesetting resumés. There are two examples, namely test-casualcv.tex and test-classiccv.tex, in the doc folder than you can look and learn how you can use it.

3.5 Print Two Pages On A Single Page

bidi package provides 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.

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.

---

[2]This class is the modified version of moderncv class.

4.1 Equating Conditionals

> `\eqnewif{⟨\newconditional1⟩}{⟨\newconditional2⟩}`

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

☞ With `\eqnewif` command, you can define two new conditionals instead one, so clearly it has two mandatory arguments.

☞ `\newconditional1` will be identical to `\newconditional2`, so that whenever `\newconditional1` is true, then `\newconditional2` is also true and whenever `\newconditional1` is false, then `\newconditional2` is also false and vice versa.

4.2 RTL Conditional

> `\if@RTL`

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

4.3 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.

4.4 Latin Conditional

> `\if@nonlatin`

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

4.5 Tags Internal Macro

> `\@iftagsloaded{⟨tags name⟩}{⟨do thing(s) if the tag is loaded⟩}`
> `{⟨do thing(s) if the tag is not loaded⟩}`

As you can see, the syntax of `\@iftagsloaded` is exactly the same as the syntax of `\@ifpackageloaded` and `\@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

☞ \bidiversion gives the current version of the package.

☞ \bididate gives the current date of the package.

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

5.3 Turning TeX--XeT features on and off

The bidirectional typesetting in XeTeX 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:

```
\TeXXeTOn  \TeXXeTOff
```

☞ \TeXXeTOn turns TeX--XeT feature on, which is active by default when bidi package
   is loaded.

☞ \TeXXeTOff turns TeX--XeT feature off.

5.4 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.

```
1 \input bidi
2 \setRTL%
3 Anyone who reads Old and Middle English literary texts will be
4  familiar with the mid-brown volumes of the EETS, with the symbol
5  of Alfred's jewel embossed on the front cover.
6
7 \setLTR% Notice the blank line before \setLTR
8 Anyone who reads Old and Middle English literary texts will be
9  familiar with the mid-brown volumes of the EETS, with the symbol
10  of Alfred's jewel embossed on the front cover.
11 \end
```

5.5 Pargraph Switching Environments

```
\LTR  ⟨text⟩  \endLTR
\RTL  ⟨text⟩  \endRTL
```

☞ With LTR environment, you can typeset LTR paragraphs.

☞ With RTL environment, you can typeset RTL paragraphs.

```
1 \input bidi
2 \RTL
3 Anyone who reads Old and Middle English literary texts will be familiar
4  with the mid-brown volumes of the EETS, with the symbol
5  of Alfred's jewel embossed on the front cover.
6 \LTR
7 Anyone who reads Old and Middle English literary texts will be familiar
8  with the mid-brown volumes of the EETS, with the symbol
9  of Alfred's jewel embossed on the front cover.
```

```
10 \endLTR
11 And we are still typesetting right to left.
12 \endRTL
13 \end
```

5.6 Typesetting Short LTR and RTL Texts

```
\LRE{⟨text⟩}   \LR{⟨text⟩}
\RLE{⟨text⟩}   \RL{⟨text⟩}
```

☞ 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.

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

5.7 Primitive-like commands

```
\hboxR   \hboxL   \vboxR   \vboxL
```

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

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

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

☞ The syntax of \vboxL is exatly 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:

```
1 \input bidi
2 \setRTL
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:

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

5.9 Typesetting Logos

```
\XeTeX
```

bidi defines XeTeX 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
```

\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.