

The bidi Package

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1 Introduction

`bidir` provides a convenient interface for typesetting bidirectional texts with Xe_{La}TeX. The package includes adaptations for use with many other commonly-used packages.

The `bidir` package at the moment only works with Xe_{La}TeX engine, but we will support Lua_{TeX} engine as well in our next release.

1.1 `bidir` Info On The Terminal and In The Log File

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

```
bidir package (Support for bidirectional typesetting with XeLaTeX)
Description: A convenient interface for typesetting bidirectional
texts with XeLaTeX. The package includes adaptations for use
with many other commonly-used packages.
Copyright © 2009-2010 Vafa Khalighi
v1.0.4, <revision 198>, 2010/03/01
License: LaTeX Project Public License, version 1.3c or higher (your choice)
Home: http://bidir.berlios.de
Location on CTAN: /macros/xetex/latex/bidir
```

1.2 PDF Creator of `bidir` Documents

If you use `bidir` package to produce a PDF file, the `bidir` package writes itself to the Application field of the PDF file and `hyperref` would have no effect since this is done at the beginning of the document. Thus if you produce a PDF file using the `bidir` package and then you look at the application field in the properties of the PDF file, you will see this:

Bidir v1.0.4 <revision 198> Copyright © 2009-2010 Vafa Khalighi

Check out the properties of this document to verify this.

2 Basics

2.1 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 2.3](#).

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:

Example 1: Wrong Order Of Loading `bidi` Package

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

...

```
1.4 \begin{document}
```

?

2.2 Commands for Version, Subversion Revision and Date of The Package

`\bidiversion \bidirevision \bididate`

☞ `\bidiversion` gives the current version of the package.

☞ `\bidirevision` gives the current subversion revision of the package.

☞ `\bididate` gives the current date of the package.

Example 2: Version, SVN Revision and Date Commands

```
\documentclass{article}
\usepackage{bidi}
\begin{document}
This is typeset by \textsf{bidi} package, \bidiversion, \bidirevision, \bididate.
\end{document}
```

2.3 Options of The Package

There are two options, namely `RTLdocument` and `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 `\setRTL` (explained in [subsection 2.4](#)), `\RTLdblcol` (explained in [subsection 2.8](#)) and `\autofooterule` (explained in [subsubsection 2.7.1](#)).

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.

2.4 Paragraph Switching Commands

<code>\setLTR</code>	<code>\setLR</code>	<code>\unsetRL</code>	<code>\unsetRTL</code>
<code>\setRTL</code>	<code>\setRL</code>	<code>\unsetLTR</code>	

☞ 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.

Example 3: Paragraph Direction Switching

```
\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}
```

2.5 Paragraph Switching Environments

<code>\begin{LTR}</code>	<code>\end{LTR}</code>
<code>\begin{RTL}</code>	<code>\end{RTL}</code>

☞ With LTR environment, you can typeset LTR paragraphs.

☞ With RTL environment, you can typeset RTL paragraphs.

Example 4: RTL and LTR Environments

```
\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.
\begin{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.
\end{LTR}
And we are still typesetting RTL.
\end{RTL}
\end{document}

```

2.6 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.

Example 5: Typesetting Short LTR and RTL texts

```

\begin{document}
\begin{RTL}
Anyone who reads Old and Middle English \LRE{Short LTR 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.
\begin{LTR}
Anyone who reads Old and Middle English \RLE{Short RTL 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.
\end{LTR}
\end{RTL}
\end{document}

```

2.7 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.

<code>\footnotetext [num] {\text}</code>	<code>\LTRfootnotetext [num] {\text}</code>	<code>\RTLfootnotetext [num] {\text}</code>
--	---	---

- ☞ `\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.

2.7.1 Footnote Rule

The behavior of footnote rules can also be controlled.

<code>\autofootnoterule</code>	<code>\rightfootnoterule</code>	<code>\leftfootnoterule</code>
<code>\LRfootnoterule</code>	<code>\textwidthfootnoterule</code>	

- ☞ `\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`.

2.8 Two Column Typesetting

<code>\RTLdblcol</code>	<code>\LTRdblcol</code>
-------------------------	-------------------------

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.

2.9 RTL cases

<code>\rcases{\text{\langle brach1\rangle}\cr\text{\langle brach2\rangle}\cr\text{\langle brach3\rangle}\dots\text{\langle main\rangle}</code>
--

`\rcases` 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.

Example 6: RTL Cases

```
\documentclass{article}
\usepackage{amsmath}
\usepackage{bidi}
```

```

\begin{document}
\setRTL
\[\rcases{\text{men}\cr\text{women}}
\text{Humans Beings}
\]
\end{document}

```

2.10 Typesetting Logos

```
\XeTeX \XeLaTeX
```

bidi defines $\text{X}\text{T}_{\text{E}}\text{X}$ and $\text{X}\text{L}_{\text{A}}\text{T}_{\text{E}}\text{X}$ logos and in addition, it makes sure that logos, $\text{T}_{\text{E}}\text{X}$, $\text{L}_{\text{A}}\text{T}_{\text{E}}\text{X}$, $\text{L}_{\text{A}}\text{T}_{\text{E}}\text{X}_{2\epsilon}$ are typeset LTR.

2.11 Separation Mark

```
\SepMark{\langle mark \rangle} \@SepMark
```

Generally in Standard $\text{L}_{\text{A}}\text{T}_{\text{E}}\text{X}$, dot is used for separation between section numbers, equation numbers any anything else which needs to be separated. You can use `\SepMark` to use any other mark as the separation mark instead a dot.

Example 7: Using A Dash Instead A Dot For Separation Marks

```

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

Example 8: Redefining `\theequation`

```

\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}

```

2.12 `\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.

2.13 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.

Please note that if you would like to define any page style for headers and footers such as `\pagestyle{headings}`, you should do it after loading `bidi` package because `bidi` for proper direction typesetting of headers and footers redefines page styles for headers and footers and so if you change your headers and footers before loading `bidi` package, your definitions for headers and footers would have no effect at all.

2.14 Tabular Typesetting

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

2.15 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.

3 Support For Various Packages and Classes

The `bidi` package supports `amsmath`, `amsthm`, `array`, `arydshln`, `breqn`, `color`, `colortbl`, `draftwatermark`, `fancyhdr`, `flowfram`, `graphicx`, `hyperref`, `listings`, `minitoc`, `multicol`, `pdfpages`, `pstricks`, `ragged2e`, `stabular`, `supertabular`, `xtab`, `tbls`, `tabulary`, `PGF & TIKZ`, `tocbibind`, `tocloft`, `tocstyle`, `wrapfig`, `xcolor`, `xltxtra` packages, `amsart`, `amsbook`, `standrad article`, `standard book`, `bookest`, `extbook`, `standard letter`, `memoir`, `rapport3`, `refrep`, `standard report`, `scartcl`, `scrbook`, `scrreprt` 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.

3.1 Color

You can use `color` and `xcolor` packages to typeset texts in colours and colour boxes produced 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 trouble which means your whole document, page or paragraph may be coloured. If your texts spans more than a line, then you should use `xecolour` 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.

3.2 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.

3.3 fancyhdr Package

When using fancyhdr package, any commands of fancyhdr package such as `\pagestyle{fancy}`, should be done after loading bidi package.

3.4 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.

3.5 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.

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

4 Extra bidi Packages and Classes

4.1 The Issue of Footnote

In standard L^AT_EX you can not use footnotes inside `\chapter`, `\part`, `\section`, `\subsection`, `\subsubsection` and any other section-like commands, `\caption` and tabular environment.

bidi package provides bidiftnextra package that solves the issue of footnote in standard L^AT_EX. bidiftnextra package should be loaded after bidi package.

4.2 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*}
```

4.3 Print Two Pages On A Single Page

bidipackage 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.

4.4 Producing Presentations

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

4.4.1 bidipresentation Class

bidipresentation is a simple class for presentations to be shown on screen or beamer. It is derived from L^AT_EX's article class. The "virtual paper size" of documents produced by this class: width=128mm, height=96mm. bidipresentation requires that the fancyhdr and geometry packages are available on the system. Enhancements to the bidipresentation class are easily made available by other packages, these include slides with a background from a bitmap (eso-pic package).

Usage: The class is used with

```
\documentclass [Options] {bidipresentation}
```

Options of the article class are also available to bidipresentation, e. g. 10pt, 11pt, 12pt for selection of font size. However, not all options of the article class will be appropriate for a presentation class, e. g. twocolumn.

A simple example document:

Example 9: bidipresentation Sample

```
\documentclass[12pt]{bidipresentation}  
\usepackage{eso-pic}  
\usepackage[RTLdocument]{bidi}  
\pagestyle{pres}  
\AddToShipoutPicture{  
\includegraphics{gradient2.png}  
}  
\begin{document}  
\begin{titlepage}  
\centering  
  \distance{1}  
  {  
\Huge \bfseries Title of the presentation \par  
}
```

```

\vspace{1.3ex} \large
Author\[\[2ex]Institution
\distance{2}
\end{titlepage}
\begin{plainslide}[Title of Page]
The first page
\end{plainslide}
\begin{rawslide}
The second page
\end{rawslide}
\end{document}

```

The title page can be created within the `titlepage` environment, the `\maketitle` command is not available. Slides may be created with the `plainslide` environment, you may add the title of the slide with the optional parameter. The contents of the slide are centered vertically. Another environment generating a slide is `rawslide`: slides are written without title, contents are not vertically centered.

The `\distance{<number>}` command allows to introduce vertical space into slides constructed with the `rawslide` and `titlepage` environments. You should use pairs of `\distance{}` commands with numbers indicating the relative height of empty space, see the titlepage in the example above.

Pictures can be included with the `\includegraphics` command of the `graphicx` package. Please be aware that the dimensions of the pages are 128mm × 96mm and therefore included graphics are scaled appropriately.

Enhancements to `bidipresentation`:

Fill background of a presentation with bitmaps: `eso-pic` package allows you to paint the background with a picture:

```

\usepackage{eso-pic}
...
\AddToShipoutPicture{
\includegraphics{gradient2.png}
}

```

`\AddToShipoutPicture{}` puts the picture on every page, `\AddToShipoutPicture*{}` puts it on to the current page, `\ClearShipoutPicture` clears the background beginning with the current page. Details of `eso-pic`'s commands can be found in its own documentation.

5 Some Useful Internal Macros

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

5.1 RTL Conditional

`\if@RTL`

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

5.2 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.

5.3 Latin Conditional

`\if@Latin`

`\if@Latin` inside any environment that uses Latin font is true and inside any environment that uses RTL font is false.

5.4 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.

5.5 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.

5.6 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.

5.7 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.

5.8 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.

5.9 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.