A LaTeX PACKAGE

USER GUIDE

babelbidi

An extension to Babel's bidirectional support

LEFT TO RIGHT

RIGHT TO LEFT

Text direction · Multilingual layout · Language selection · Font configuration

VERSION

1.0.0

November 11, 2026

MAINTAINER

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LuaTeX (recommended) · XeTeX · pdfTeX

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Abstract

The babelbidi package extends Babel's bidirectional support by correcting direction-sensitive behaviour and providing interfaces for text direction, layout, language selection, and font configuration, including LaTeX glyph fallback. It works with Babel-supported languages and with LaTeX (recommended), XeTeX, and RuTeX, with either an LTR or RTL main language.

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1 Introduction

Babel provides a framework for multilingual typesetting in LaTeX, including documents that combine left-to-right (LTR) and right-to-left (RTL) languages. Direction also affects paragraph layout, footnotes, lists, tables, margins, and other document elements, some of which may require adjustments in RTL contexts.

The babelbidi package extends Babel's bidirectional support with direction interfaces and layout corrections. It also provides language-aware text switching, font configuration, and glyph fallback with LaTeX. It supports either an LTR or RTL main language.

The package provides interfaces compatible with bidi, with engine-dependent implementations. XeTeX uses the bidi backend; LuaTeX and pdfTeX use interfaces supplied by babelbidi. Identical output across engines is not guaranteed.

The main engine-dependent capabilities are summarized below. Here, `Native` means that the feature is implemented by babelbidi, while `Via bidi` indicates that it is provided by bidi.

Feature	LuaTeX	XeTeX	pdfTeX
Direction and layout interfaces	Native	Via bidi	Native
Unicode font commands	Native	Native	–
Glyph fallback	Native	–	–
Extra footnote layouts	Native	Via bidi	Native
minted `textlang` and `textdir`	Native	Native	Native
minted `chardir`	Native	–	–

The table describes interface availability, not identical behaviour or equal language coverage. In particular, pdfLaTeX still requires suitable input encodings, fonts, and Babel language support.

The following sections explain how to load and configure babelbidi, control text direction and layout, select languages and fonts, and use its additional interfaces and package patches. They also describe relevant engine-specific behaviour and limitations.

2 Obtaining and Installing

The official version of babelbidi is available from CTAN:

https://ctan.org/pkg/babelbidi

Once the TeX Live package database has been updated, install it with:

```
tlmgr install babelbidi
```

3 Loading

Load the package with:

```
\usepackage[<options>]{babelbidi}
```

Normally, babelbidi loads Babel and selects a bidirectional backend. With LuaLaTeX and beamer-rl, Babel setup is delegated to the class. Options not defined by babelbidi are passed to Babel. The `bidi` and `layout` options are Babel options for which babelbidi provides engine-dependent defaults.

bidi=⟨*value*⟩

Selects the bidirectional backend. If it is not specified, its default value is selected according to the engine:

Engine	Default value of `bidi`
LaTeX	`basic`
XeTeX	`bidi-r`
PdfTeX	`default`

layout=⟨*selectors*⟩

With LaTeX, the default value is:

```
counters graphics footnotes lists
```

Specifying `layout` replaces this default; it does not add to it. For example:

```
layout={counters footnotes}
```

This selects only `counters` and `footnotes`. To retain `graphics` and `lists`, include them explicitly. Values containing multiple selectors must be enclosed in braces. The package applies this `layout` setting only with LaTeX; it has no effect in the XeTeX and PdfTeX loading branches.

LaLaTeX is recommended for its broader capabilities and extensibility. Babel's `onchar` option can select a language from the characters in the text. For Arabic, for example:

```
\babelprovide[import,mapdigits,onchar=ids fonts letters]{arabic}
```

Punctuation shared by several scripts, such as parentheses, may still require explicit language selection. For slides with an RTL main language, beamer-rl is recommended over beamer, although it is not required. With LaLaTeX and beamer-rl, Babel setup is delegated to the class.

With LaTeX, the boolean option

fontcache=⟨*true*⟩/⟨*false*⟩

controls caching of Babel font mappings used by automatic font selection and glyph fallback. It is enabled by default to improve compilation speed. In special cases, such as font changes made through the `rmfamily` hook, cached mappings may prevent changes from taking effect. Disable the cache when needed:

```
\usepackage[fontcache=false]{babelbidi}
```

To enable paragraph and multi-column footnote layouts, use the following option:

extrafootnotefeatures=⟨*on*⟩/⟨*off*⟩

Its default is `off`. The option also accepts explicit `=on` and `=off` values:

```
\usepackage[extrafootnotefeatures]{babelbidi}
```

With XeTeX, it is passed to bidi; with LaTeX and PdfTeX, babelbidi provides its own implementation. See Section 8.3 for the available commands.

logostyle=⟨*auto*⟩/⟨*simple*⟩

Selects the engine-logo style. The default is `auto`. Use `simple` for non-reflected logos, even when graphicx is loaded. See Section 12.

4 Quick Start

The following example works with LaTeX and XeLaTeX and requires the fonts Latin Modern Roman and Amiri:

```
\documentclass{article}
\usepackage{babelbidi}

\babelprovide[import,main]{english}
\babelprovide[import]{arabic}

\babelfont{rm}{Latin Modern Roman}
\babelfont[arabic]{rm}{Amiri}

\begin{document}
    English text with \rl{نص عربي}.

    \begin{otherlanguage}{arabic}
        نص عربي مع \lr{English text}.
    \end{otherlanguage}
\end{document}
```

The lowercase commands `\lr` and `\rl` select a language context as well as its direction. By contrast, the uppercase commands `\LR` and `\RL` change direction only; they do not select a language or font. The `onchar` option can automate language selection for characters, as shown in the previous section.

5 Font Fallback

With LaTeX, babelbidi can use fonts from other Babel languages when the current font lacks a required glyph. Declare an ordered fallback chain in the preamble:

`\fontfallback{`⟨*source*⟩`}{`⟨*candidates*⟩`}`

Declares an ordered list of candidate languages whose fonts can provide missing glyphs for the source language.

```
\fontfallback{english}{persian,greek}
```

The source and candidate languages must be known to Babel, and their fonts must be declared with `\babelfont`. These declarations should be made in the preamble. The `\fontfallback` declaration may precede them; fallback mappings are resolved when the document begins.

Fallback applies to text fonts, including custom families, but not to math fonts. It works with or without `onchar=fonts` and also uses the `fontcache` setting. An explicit `\latinttfamily` selection uses the selected Latin language's fallback chain without changing the text language or direction.

A later declaration replaces the previous chain; an empty candidate list disables fallback:

```
\fontfallback{english}{}
```

Unknown source or candidate languages produce warnings. Repeated candidates and self-references are ignored. Fallback is not recursive and is applied per glyph before shaping. If no candidate contains a glyph, it remains in the original font. Combining-mark placement, joining, and visual consistency across fonts are not guaranteed; choose compatible fonts for the scripts involved. XeLaTeX and PdfLaTeX warn and ignore explicit fallback declarations.

6 Text Direction

These interfaces control direction without changing the active language. Use inline commands for a passage within a paragraph, and switches or environments for paragraph-level direction.

6.1 Inline Text

`\beginL`

Begins an explicit LTR text segment; it must be matched by `\endL`.

`\endL`

Ends the explicit LTR text segment.

`\beginR`

Begins an explicit RTL text segment; it must be matched by `\endR`.

`\endR`

Ends the explicit RTL text segment.

`\LR{`⟨*text*⟩`}`
`\LRE{`⟨*text*⟩`}`

Typesets the argument as inline LTR text. The two names are equivalent.

`\RL{`⟨*text*⟩`}`
`\RLE{`⟨*text*⟩`}`

Typesets the argument as inline RTL text. The two names are equivalent.
Prefer the argument-taking commands for short passages.

6.2 Paragraphs and Blocks

`\setLTR`
`\setLR`
`\unsetRTL`

These equivalent commands set paragraph direction to LTR.

`\setRTL`
`\setRL`
`\unsetLTR`

These equivalent commands set paragraph direction to RTL.
The switches take no arguments; place them between paragraphs and use a group to limit their scope. End the final paragraph before closing the group.

`\begin{LTR} ... \end{LTR}`
`\begin{RTL} ... \end{RTL}`

The LTR environment typesets an enclosed block in LTR direction; RTL typesets it in RTL direction. The environments handle paragraph boundaries and may contain several paragraphs.

7 Boxes and Positioning

7.1 Directional Boxes

These are directional variants of \hbox, \vbox, and \vtop; the suffix selects LTR or RTL direction.

\hboxL

Creates a horizontal LTR box without line breaking.

\hboxR

Creates a horizontal RTL box without line breaking.

\vboxL

Creates a vertical LTR box with a bottom reference point.

\vboxR

Creates a vertical RTL box with a bottom reference point.

\vtopL

Creates a vertical LTR box with a top reference point.

\vtopR

Creates a vertical RTL box with a top reference point.

Text in vertical boxes is broken into lines according to \hsize. For boxes containing lines of text, \vbox uses the last line's baseline and \vtop the first.

Before the opening brace, `to <dimension>` sets the final width of a horizontal box or height of a vertical box; `spread <dimension>` adds to its natural size. Stretchable or shrinkable space adjusts to the requested size. Use \setbox to store a box and \box to insert it.

7.2 Overlapping Text

These direction-sensitive variants of \llap and \rlap place text in a zero-width box.

\bidillap{⟨*text*⟩}

Overlaps text to the left in LTR text and to the right in RTL text.

\bidirlap{⟨*text*⟩}

Overlaps text to the right in LTR text and to the left in RTL text.

8 Footnotes and Title Notes

Footnote direction, rule appearance, and layout are controlled separately. Explicit commands insert an individual note; direction switches set the policy for subsequent ordinary footnotes.

8.1 Footnote Direction

The LTR and RTL forms select the direction of the footnote text, not its language. Use Babel's language commands when a footnote also requires a different language or font.

\LTRfootnote[⟨*num*⟩]{⟨*text*⟩}

Inserts a footnote whose text is set in LTR direction.

`\RTLfootnote[⟨num⟩]{⟨text⟩}`

Inserts a footnote whose text is set in RTL direction.

`\LTRfootnotetext[⟨num⟩]{⟨text⟩}`

Inserts LTR footnote text without a mark in the main text.

`\RTLfootnotetext[⟨num⟩]{⟨text⟩}`

Inserts RTL footnote text without a mark in the main text.

The optional ⟨*num*⟩ has the same meaning as in `\footnote` or `\footnotetext`. The `\LTRfootnotetext` and `\RTLfootnotetext` commands do not insert a mark in the main text; use them with `\footnotemark` when a mark is needed.

`\LTRthanks{⟨text⟩}`

Inserts a title note in LTR direction.

`\RTLthanks{⟨text⟩}`

Inserts a title note in RTL direction.

The title-note commands are counterparts of `\thanks` and can be used in the `\author` or `\title` argument.

`\setfootnoteLR`
`\unsetfootnoteRL`

These equivalent commands set subsequent ordinary footnotes to LTR.

`\setfootnoteRL`
`\unsetfootnoteLR`

These equivalent commands set subsequent ordinary footnotes to RTL.

The switches take no arguments and insert no note. They set the direction policy for subsequent ordinary footnotes. Their assignments are local and remain in effect within their scope until changed. The `unset` forms select the opposite direction; they do not restore the initial Babel behaviour.

Explicitly directed footnotes take precedence over the policy: for example, `\RTLfootnote` still produces an RTL footnote after `\setfootnoteLR`. Before a direction policy is selected, the existing Babel behaviour is retained.

8.2 Footnote Rules

These controls affect the rule, not the footnote text direction.

`\leftfootnoterule`
`\LRfootnoterule`

These equivalent commands select a left-aligned footnote rule.

`\rightfootnoterule`
`\RLfootnoterule`

These equivalent commands select a right-aligned footnote rule.

`\textwidthfootnoterule`

Selects a full-width footnote rule.

`\autofootnoterule`

Selects rule alignment according to footnote direction. Automatic alignment is engine-dependent:

LaTeX: Inspect the direction of the first line in the ordinary footnote insertion box; use a left rule if no line is found.

pdfTeX: Use the first explicitly directed footnote recorded since the preceding shipout; use a left rule if none was recorded. This is a fallback, not an inspection of the final footnote box.

XeTeX: Use the implementation supplied by bidi.

`\footnoterulewidth`

Length controlling the width of short footnote rules. With LaTeX and pdfTeX, the initial short-rule width is `.4\columnwidth`, evaluated when the length is set.

For example:

```
\setlength{\footnoterulewidth}{.3\columnwidth}
\rightfootnoterule
```

`\SplitFootnoteRule`

Selects a full-width rule above a continued footnote. Select the ordinary rule before `\SplitFootnoteRule`. It retains that rule on ordinary pages and uses a full-width rule above a continuation from the preceding page.

`\debugfootnotedirection`

Enables direction messages when the automatic rule is evaluated. To diagnose automatic rule selection, use:

```
\autofootnoterule
\debugfootnotedirection
```

The LaTeX and pdfTeX implementations provide no corresponding public command to disable these diagnostic messages. Remove the diagnostic command for normal runs.

With LaTeX and pdfTeX, rule selectors make global assignments. In RTL-main documents, the package selects a right-aligned default rule only if no replacement rule has already been selected. Extra footnote layouts change rule handling as described below.

8.3 Extra Footnote Layouts

Enable these layouts with the `extrafootnotefeatures` package option. With LaTeX and pdfTeX, they apply to page and minipage footnotes and preserve language, direction, labels, and hyperlinks.

`\normalfootnotes[*]`

Selects the ordinary one-column layout.

`\paragraphfootnotes[*]`

Selects paragraph layout.

`\twocolumnfootnotes[*]`

Selects a two-column layout.

`\threecolumnfootnotes[*]`

Selects a three-column layout.

`\fourcolumnfootnotes[*]`

Selects a four-column layout.

`\fivecolumnfootnotes[*]`

Selects a five-column layout.

`\sixcolumnfootnotes[*]`

Selects a six-column layout.

`\sevencolumnfootnotes[*]`

Selects a seven-column layout.

`\eightcolumnfootnotes[*]`

Selects an eight-column layout.

`\ninecolumnfootnotes[*]`

Selects a nine-column layout.

`\tencolumnfootnotes[*]`

Selects a ten-column layout.

Each layout command accepts an optional star. Without it, the footnote mark occupies a fixed-width box; with it, the box uses the mark's natural width:

```
\twocolumnfootnotes*
```

With LaTeX and pTeX, paragraph and multi-column layouts collect RTL and LTR notes separately. Ordinary one-column footnotes are output first, followed by the RTL group and then the LTR group. Within each multi-column group, columns run right to left for RTL notes and left to right for LTR notes. Consequently, the visual order of notes may differ from the order of references in the text. With XeTeX, the layouts and their detailed behaviour are supplied by bidi.

With LaTeX and pTeX, layout assignments are local, but collected notes are assembled later. Select a layout in the preamble or at a page boundary and keep it in force until the affected notes have been output. Do not rely on independent paragraph and multi-column layouts within the same pending stream. For a document-wide layout:

```
\usepackage[extrafootnotefeatures]{babelbidi}
\twocolumnfootnotes
```

With LaTeX and pTeX, to change the layout in the body, flush the preceding page first:

```
\clearpage
\paragraphfootnotes
```

With XeTeX, select `\paragraphfootnotes` in the preamble; its implementation in bidi requires preamble-only setup.

With LaTeX and pTeX, the extra-layout implementation installs a rule spanning `\columnwidth` and disables `\autofootnoterule`, `\leftfootnoterule`, `\LRfootnoterule`, `\rightfootnoterule`, `\RLfootnoterule`, and `\textwidthfootnoterule`. Calling `\normalfootnotes` does not restore these selectors. The rule spans the footnote area of the current document column, not an individual footnote column.

9 Lists, Cases, and Counters

9.1 Citations

`\Latincite[`⟨*note*⟩`]{`⟨*keys*⟩`}`

Works like `\cite`, except that citation labels and their separators are typeset using the selected Latin language and font. The optional ⟨*note*⟩ retains the surrounding language and text direction. With standard LaTeX citations, a Persian comma precedes the note in right-to-left text; ensure that this character is available in the surrounding font or through font fallback. In left-to-right text, an ordinary comma is used. With cite, natbib, or biblatex, the citation arguments and formatting follow the active `\cite`.

```
\Latincite{knuth}
\Latincite[page 23]{knuth}
\Latincite{knuth,lamport}
```

9.2 Lists and Bibliographies

These environments set the direction of selected items within an existing list or bibliography; they do not create a new list. Use them inside the corresponding list or bibliography environment.

`\begin{LTRitems}` ... `\end{LTRitems}`

`\begin{RTLitems}` ... `\end{RTLitems}`

The `LTRitems` environment sets the direction of the enclosed list items to LTR; `RTLitems` sets it to RTL.

The environments group consecutive `\item` entries. They can be used inside lists such as `itemize` and `enumerate`; they do not replace those environments.

For example, a list can contain an RTL group between ordinary items:

```
\begin{itemize}
    \item The first item
    \begin{RTLitems}
        \item مورد دوم
        \item مورد سوم
    \end{RTLitems}
    \item The fourth item
\end{itemize}
```

`\begin{LTRbibitems}` ... `\end{LTRbibitems}`

`\begin{RTLbibitems}` ... `\end{RTLbibitems}`

The `LTRbibitems` environment sets the direction of the enclosed bibliography entries to LTR; `RTLbibitems` sets it to RTL.

Use these environments inside `thebibliography`, with `\bibitem` for each entry.

For bibliography entries, use `\bibitem` rather than `\item`. The following example sets one entry in LTR direction without changing the bibliography heading:

```
\begin{thebibliography}{9}
    \begin{LTRbibitems}
        \bibitem{knuth}
        Donald E. Knuth. \textit{The TeXbook}. 1984.
    \end{LTRbibitems}
\end{thebibliography}
```

Here, 9 reserves space for a single-digit label, and `knuth` is the key used by `\cite{<knuth>}`.

To set the direction of all bibliography entries, use one of the following switches before `thebibliography` begins. The setting is local; the heading and running marks retain the surrounding direction.

`\setLTRbibitems`

Sets all bibliography entries to LTR direction.

`\setRTLbibitems`

Sets all bibliography entries to RTL direction.

`\setdefaultbibitems`

Restores the default bibliography-entry direction.

9.3 Cases

`\begin{RTLcases} ... \end{RTLcases}`

Typesets two columns with a brace on the right. Cells use text mode: separate columns with &, rows with \\, and enclose mathematics in `$...$`.

```
\begin{RTLcases}
    $x$  & $x \geq 0$ \\
    $-x$ & $x < 0$
\end{RTLcases}
```

9.4 Counter Separators

With XeTeX, `\SepMark` is provided by bidi; its counter-formatting behaviour follows that implementation.

`\SepMark{`⟨*separator*⟩`}`

Globally sets the separator in supported compound counters; the default is a period. With LaTeX and RtlTeX, the patch replaces a period immediately following the parent counter in standard sectioning formats, chapter-based equation, figure, and table numbers, and formats created by unstarred `\numberwithin`. It also sets the theorem-counter separator.

This is not a general replacement of punctuation in counter definitions. Custom formats without the expected parent-counter pattern are left unchanged. Other formatting, including Babel's localized digits, is retained.

10 Margins and Columns

10.1 Margin Notes

Explicit commands insert a directed note; switches configure ordinary `\marginpar` commands without inserting a note.

`\LTRmarginpar[`⟨*left-text*⟩`]{`⟨*right-text*⟩`}`

Inserts a margin note with LTR text.

`\RTLmarginpar[`⟨*left-text*⟩`]{`⟨*right-text*⟩`}`

Inserts a margin note with RTL text.

The optional ⟨*left-text*⟩ argument has the same meaning as in `\marginpar`: alternative text for the left margin. Explicit commands change the note's text direction, not its placement policy.

With XeTeX, these explicit commands use the native bidi implementation, which may apply the explicit direction only to the first paragraph of a multi-paragraph margin note. With LaTeX and PdfTeX, babelbidi keeps the selected direction throughout the note.

`\setLTRmarginpar`

Sets ordinary margin notes to LTR direction and placement.

`\setRTLmarginpar`

Sets ordinary margin notes to RTL direction and placement.

`\setdefaultmarginpar`

Restores behaviour based on the surrounding text direction.

For ordinary `\marginpar` commands, the direction switches apply when no optional left-hand text is supplied. With the optional form, the surrounding text direction is retained. The switches are local; page parity, reversed margins, and document columns still participate in placement. By default, ordinary margin notes follow the surrounding text direction.

10.2 Two-Column Output

These commands change the order of completed document columns, not the direction of their contents. They do not enable two-column mode.

`\LTRdblcol`

Places the first column on the left.

`\RTLdblcol`

Places the first column on the right.

The default order follows the main document direction. For multi-column footnotes, see Section 8.3.

10.3 Two-Column Table of Contents

`\twocolumnstableofcontents`

Typesets the table of contents in two columns, with a full-width section heading and `\small` entries. It takes no arguments and does not change the current language or direction. Load multicol in the preamble.

11 Language and Font APIs

11.1 Font Selection

With XeLaTeX or LaLaTeX, the following font commands are available. The optional arguments accept font feature settings supported by fontspec.

`\settextfont[`⟨*font features*⟩`]{`⟨*font*⟩`}`

Sets the same font and font features for the `rm`, `sf`, and `tt` families of the main language.

`\setlatintextfont[`⟨*font features*⟩`]{`⟨*font*⟩`}`

Sets the same font and font features for all three font families of the selected Latin language.

These two commands apply the same font and font features to all three families (`rm`, `sf`, and `tt`). For individual language–family assignments, use `\babelfont` directly.

`\latinfont`

Selects the roman font for the selected Latin language, without changing the current language or direction. Use a group to limit its scope: `{\latinfont Latin text}`.

`\deflatinfont{`⟨*command*⟩`}[`⟨*font features*⟩`]{`⟨*font*⟩`}`

Defines an independent font-family command with `Script=Latin`. Additional font features can be specified in the optional argument. This command does not register a font with Babel or select a language.

`\setlatinsansfont[`⟨*font features*⟩`]{`⟨*font*⟩`}`

Sets the sans-serif font family for the selected Latin language.

`\setlatinmonofont[`⟨*font features*⟩`]{`⟨*font*⟩`}`

Sets the monospaced font family for the selected Latin language and configures it for use by `\latinttfamily`.

`\setmonofont[`⟨*font features*⟩`]{`⟨*font*⟩`}[`⟨*font features*⟩`]`

Sets the document's monospaced font through fontspec. When Babel is loaded, it also registers this font for the `tt` family of the main language, making it available to LaTeX glyph fallback.

11.2 Language Commands

Unlike the direction-only commands, `\lr` and `\rl` select a Babel language context as well as the corresponding direction. The uppercase commands `\LR` and `\RL` change direction only; they do not select a language. The language-switching commands are not part of the standard bidi interface.

`\lr{`⟨*text*⟩`}`

Typesets text using the selected LTR language.

`\rl{`⟨*text*⟩`}`

Typesets text using the selected RTL language.

`\latintoday`

Prints the current date using the selected Latin language.

`\latinttfamily`

Selects the Latin monospaced font family; Unicode engines only.

`\latinverb`⟨*delimiter*⟩⟨*text*⟩⟨*delimiter*⟩

Typesets inline verbatim text in the selected `code` language.

`\latinverb*`⟨*delimiter*⟩⟨*text*⟩⟨*delimiter*⟩

Does the same, with visible spaces.
Despite its name, `\latinverb` selects the `code` language, not the `latin` alias.

11.3 Language Environments

`\begin{latin}` ... `\end{latin}`

Typesets contents in the selected Latin language.

`\begin{latinverbatim}` ... `\end{latinverbatim}`
`\begin{latinverbatim*}` ... `\end{latinverbatim*}`

The `latinverbatim` environment typesets a verbatim block in the selected `code` language. The starred form does the same, with visible spaces.

The Latin verbatim interfaces are available regardless of the main script.

11.4 Language Selection

The following package keys select the languages used by these interfaces:

`latin=`⟨*language*⟩

Selects the language for the `latin` environment, `\latintoday`, `\latinttfamily`, `\latinfont`, `\Latincite`, and Latin font commands.

`ltr=`⟨*language*⟩

Selects the language used by `\lr`.

`rtl=`⟨*language*⟩

Selects the language used by `\rl`.

`code=`⟨*language*⟩

Selects the language for Latin verbatim interfaces and code-package integration.

These keys select language names; they do not load the languages. For example:

```
\usepackage[code=dutch,rtl=arabic]{babelbidi}
\babelprovide[import]{dutch}
\babelprovide[import]{arabic}
```

Unless specified explicitly, the values are selected automatically and updated after each `\babelprovide` call. Explicit values remain unchanged. The automatic selections are determined as follows:

`latin`: The main language if it uses the Latin script; otherwise, the first loaded Latin-script language; otherwise, `english`.

`ltr`: The main language if it is LTR; otherwise, the first loaded LTR language; otherwise, `english`.

`rtl`: The main language if it is RTL; otherwise, the first loaded RTL language; otherwise, `arabic`.

`code`: The main language if it uses the Latin script; otherwise, loaded `english`; otherwise, the first loaded Latin-script language; otherwise, the main or first loaded LTR language; finally, the main language. If the main language is Babel's `nil` placeholder, the final fallback is `english`.

Selections use Babel's language metadata and loading order. Ensure that a selected language is declared before using it, including a default such as `english` or `arabic`. Declare languages before configuring their fonts.

These selections are handled by babelbidi-lang, which babelbidi loads automatically. For standalone use, load Babel first:

```
\usepackage[english]{babel}
\usepackage{babelbidi-lang}
```

The standalone package provides `\lr`, `\rl`, `\latintoday`, and the `latin` environment, and accepts the language-selection keys above. Configure Babel's languages, direction support, and fonts as needed.

12 Engine Logos

`\TeX`	`\LaTeX`	`\LaTeXe`
`\XeTeX`	`\LuaTeX`	`\pdfTeX`
`\XeLaTeX`	`\LuaLaTeX`	`\pdfLaTeX`

These commands typeset the corresponding logos, preserving the surrounding language and direction. With babelbidi, they locally use English or the selected Latin language, when available.

All logos use `\xspace` for automatic spacing. Append `{}` for explicit control, as in `\LaTeX{}-based`.

The default `logostyle=auto` uses graphics-based variants when graphics or graphicx is loaded before babelbidi. Use `logostyle=simple` for variants without reflected letters. This option does not affect the standard TEX, LATEX, and LATEX 2ε constructions.

For standalone use, load babelbidi-logos directly, with `style=auto` or `style=simple`.

13 Patches

Patches are applied automatically when their engine and package conditions are met. Load related packages in the preamble. The code integrations can be loaded before or after babelbidi.

13.1 Common Patches

- **LATEX verbatim interfaces:** With a non-Latin main script, adjust direction and font handling for `\verb`, `\verb*`, `verbatim`, and `verbatim*`. With Unicode engines, the font patch selects `\latinttfamily` without changing the text language.
- listings: With a non-Latin main script, select the `code` language for display and inline listings, with direction handling for inline listings.
- minted: Register the options described in Section 14 for both Latin and non-Latin main scripts. Additional display wrappers are installed for non-Latin main scripts.
- **Labels and link targets:** Remove Babel counter-direction wrappers while constructing label keys and hyperlink target names, without removing them from displayed counter values.

13.2 XELATEX Patches

With XELATEX, load hyperref before babelbidi. With current bidi versions, the reverse order can cause errors in footnotes.

- natbib: Adjust citation-link handling in RTL text with recent hyperref versions.
- fontspec: Disable its automatic math-font setup when Babel bidi mode is active. This is not a general mathematics-direction patch.

13.3 LaTeX Patches

- **Boxes and tables:** Adjust `\makebox` positioning and interchange the handling of `l` and `r` alignment in RTL contexts. The table patch changes cell alignment, not the declared column sequence.
- **Footnotes:** Adjust paragraph direction in RTL contexts and handle footnotes issued in mathematics in RTL-main documents.
- beamer: Adjust rounded-box layout, except with beamer-rl.

For RTL-main documents, additional LaTeX patches apply:

- **TikZ:** Use LTR paragraph direction inside `tikzpicture`, except with beamer-rl.
- fancyhdr: Set `\headheight` to `1.2em` and wrap headers and footers in LTR runs. This value is not an automatic measurement of the header contents.

14 Minted Package

Load minted as usual and meet its external-tool requirements:

```
\usepackage{minted}
```

The options below are added by babelbidi, not by minted. They are registered for both Latin and non-Latin main scripts.

14.1 Language and Direction

`textlang=`⟨*language*⟩

Selects an already declared Babel language. If it is empty, the selected `code` language is used.

`textdir=`⟨*direction*⟩

Accepts `ltr` or `rtl`. It is applied after language selection, so an explicit direction overrides the direction established by `textlang`.

```
\begin{minted}[textlang=persian,textdir=rtl]{text}
    متن فارسی
\end{minted}
```

The language `persian` must already be declared and have a suitable font. The argument `text` above is the minted lexer, not the Babel language. Defaults can also be set with `\setminted`:

```
\setminted{textlang=english,textdir=ltr}
```

14.2 Character Directions

With LaTeX, the following option temporarily changes Babel character-direction properties:

`chardir=`⟨*pairs*⟩

Accepts a comma-separated list of `{character}{direction}` pairs. Direction values include `l`, `r`, `al`, `en`, `an`, `on`, `et`, and `cs`.

For example, assign LTR direction to a backslash and closing brace:

```
\begin{minted}[textdir=rtl,
    chardir={{\\}{l},{\}}{l}}]{latex}
    این روش در
    \lr{Chapter 2 (Examples)}
    توضیح داده شده است.
\end{minted}
```

Saved properties are restored after the `minted` environment. The restoration hook is environment-based; do not assume equivalent restoration for inline commands or file-input interfaces. A nonempty `chardir` value raises an error with XeLaTeX or PdfLaTeX; it is not silently ignored.

14.3 Layout

Inside `minted` environments, line numbers use Latin digits. With LaTeX, frame lines and padding receive LTR geometry adjustments. For a non-Latin main script, the additional LaTeX display wrapper uses a minipage. Such wrapped displays cannot break across pages; keep this in mind for long listings.

15 Limitations and Compatibility

- Shared interfaces do not imply identical implementations or output across engines. With XeTeX, behaviour may also depend on the installed bidi version.
- Direction commands do not provide language data, input encodings, fonts, or glyphs. Some patches depend on Babel or third-party package internals, so successful compilation alone does not guarantee correct bidirectional layout. Inspect the output, especially when combining direction changes with other layout packages.
- Extra footnote layouts modify insertion and output handling. Check their compatibility with classes or packages that modify these mechanisms, including the position and order of notes. See Section 8.3 for the engine-specific behaviour and restrictions.

16 License

The babelbidi package is released under the LaTeX Project Public License (LPPL), version 1.3c or later. The full license text is available in the `LICENSE` file. This independent guide adapts presentation code from the Babel manual. Source and copyright notices for this and other reused material are in `THIRD-PARTY-NOTICES.md`.

17 Author and Maintainer

The package is developed and maintained by **Amer Amikhteh**.

Source code, development versions, and the issue tracker are available in the project repository:

`https://github.com/gambi-shah/babelbidi`

The repository also contains test documents in the `test/` directory. These development files are not included in the CTAN distribution.

For bug reports, include a minimal example, the TeX engine and its version, and the complete log file. Add `\listfiles` to the preamble to record the loaded file versions in the log.