The chemarr package

Heiko Oberdiek*

2016/05/16 v1.3

Abstract

Very often chemists need a longer version of reaction arrows (`\rightleftharpoons`) with the possibility to put text above and below. Analogous to amsmath's `\xrightarrow` and `\xleftarrow` this package provides the macro `\xrightleftharpoons`.

Contents

1 Usage

`\xrightleftharpoons`

This LaTeX package defines `\xrightleftharpoons`. It prints extensible arrows (harpoons), usually used in chemical reactions. It allows to put some text above and below the harpoons and can be used inside and outside of math mode.

The package is based on amsmath, thus it loads it, if necessary.

*Please report any issues at https://github.com/ho-tex/oberdiek/issues

1.1 Example

```
⟨*example⟩
\documentclass{article}
\usepackage{chemarr}
\begin{document}
\begin{center}
  left
  \xrightleftharpoons[\text{below}]{\text{above}}
  right
\end{center}
\[
  A
  \xrightleftharpoons[T \geq 400\,\mathrm{K}]{p > 10\,\mathrm{hPa}}
  B
\]
\end{document}
⟨/example⟩
```

The result:

$$\text{left} \underset{\text{below}}{\overset{\text{above}}{\rightleftharpoons}} \text{right}$$

$$A \underset{T \geq 400\,\mathrm{K}}{\overset{p > 10\,\mathrm{hPa}}{\rightleftharpoons}} B$$

2 Implementation

```
⟨*package⟩
```

Package identification.

```
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{chemarr}%
  [2016/05/16 v1.3 Arrows for chemical reactions (HO)]
\RequirePackage{amsmath}
```

The package amsmath is needed for the following commands:
`\ext@arrow`, `\@ifnotempty`, `\arrowfill@`
`\relbar`, `\std@minus`
`\@ifempty`, `\@xifempty`, `\@xp`

`\xrightleftharpoons` In `fontmath.ltx` `\rightleftharpoons` is defined with a vertical space of 2pt.

```
\newcommand{\xrightleftharpoons}[2][]{%
  \ensuremath{%
    \mathrel{%
      \settoheight{\dimen@}{\raise 2pt\hbox{$\rightharpoonup$}}%
      \setlength{\dimen@}{-\dimen@}%
      \edef\CA@temp{\the\dimen@}%
      \settoheight\dimen@{$\rightleftharpoons$}%
      \addtolength{\dimen@}{\CA@temp}%
      \raisebox{\dimen@}{%
        \rlap{%
          \raisebox{2pt}{%
            $%
            \ext@arrow 0359\rightharpoonupfill@{\hphantom{#1}}{#2}%
            $%
          }%
        }%
        \hbox{%
```

```
      $%
      \ext@arrow 3095\leftharpoondownfill@{#1}{\hphantom{#2}}%
      $%
    }%
  }%
 }%
}
```

\leftharpoondownfill@

```
\newcommand*{\leftharpoondownfill@}{%
  \arrowfill@\leftharpoondown\relbar\relbar
}
```

\rightharpoonupfill@

```
\newcommand*{\rightharpoonupfill@}{%
  \arrowfill@\relbar\relbar\rightharpoonup
}
```

```
⟨/package⟩
```

3 Installation

3.1 Download

Package. This package is available on CTAN[1]:

CTAN:macros/latex/contrib/oberdiek/chemarr.dtx The source file.

CTAN:macros/latex/contrib/oberdiek/chemarr.pdf Documentation.

Bundle. All the packages of the bundle 'oberdiek' are also available in a TDS compliant ZIP archive. There the packages are already unpacked and the documentation files are generated. The files and directories obey the TDS standard.

CTAN:install/macros/latex/contrib/oberdiek.tds.zip

TDS refers to the standard "A Directory Structure for TEX Files" (CTAN:pkg/tds). Directories with `texmf` in their name are usually organized this way.

3.2 Bundle installation

Unpacking. Unpack the `oberdiek.tds.zip` in the TDS tree (also known as `texmf` tree) of your choice. Example (linux):

```
unzip oberdiek.tds.zip -d ~/texmf
```

3.3 Package installation

Unpacking. The `.dtx` file is a self-extracting docstrip archive. The files are extracted by running the `.dtx` through plain TEX:

```
tex chemarr.dtx
```

[1] CTAN:pkg/chemarr

TDS. Now the different files must be moved into the different directories in your installation TDS tree (also known as `texmf` tree):

```
chemarr.sty         → tex/latex/oberdiek/chemarr.sty
chemarr.pdf         → doc/latex/oberdiek/chemarr.pdf
chemarr-example.tex → doc/latex/oberdiek/chemarr-example.tex
chemarr.dtx         → source/latex/oberdiek/chemarr.dtx
```

If you have a `docstrip.cfg` that configures and enables docstrip's TDS installing feature, then some files can already be in the right place, see the documentation of docstrip.

3.4 Refresh file name databases

If your TEX distribution (TEX Live, MiKTEX, ...) relies on file name databases, you must refresh these. For example, TEX Live users run `texhash` or `mktexlsr`.

3.5 Some details for the interested

Unpacking with LATEX. The `.dtx` chooses its action depending on the format:

plain TEX: Run docstrip and extract the files.

LATEX: Generate the documentation.

If you insist on using LATEX for docstrip (really, docstrip does not need LATEX), then inform the autodetect routine about your intention:

```
latex \let\install=y\input{chemarr.dtx}
```

Do not forget to quote the argument according to the demands of your shell.

Generating the documentation. You can use both the `.dtx` or the `.drv` to generate the documentation. The process can be configured by the configuration file `ltxdoc.cfg`. For instance, put this line into this file, if you want to have A4 as paper format:

```
\PassOptionsToClass{a4paper}{article}
```

An example follows how to generate the documentation with pdfLATEX:

```
pdflatex chemarr.dtx
makeindex -s gind.ist chemarr.idx
pdflatex chemarr.dtx
makeindex -s gind.ist chemarr.idx
pdflatex chemarr.dtx
```

4 History

[2001/06/21 v1.0]

- First public version.

[2001/06/22 v1.1]

- Documentation fixes.

[2006/02/20 v1.2]

- DTX framework.
- Example added.

[2016/05/16 v1.3]

- Documentation updates.

5 Index

Numbers written in italic refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; plain numbers refer to the code lines where the entry is used.