The chemarrow package

New arrow heads for chemical reaction schemes

Thomas Schroeder
schroeder@ictw.chemie.uni-karlsruhe.de

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Contents

1 What's the name of the game?

LaTeX can be used to typeset many kinds of different documents, but typesetting chemical reactions is esthetically not very pleasing because LaTeX's own arrows `\rightarrow`, `\leftarrow` and `\rightleftharpoons` which you might use for this purpose are too short and the arrow heads are not like the "standard" ones you will find in books or journals on chemistry.

The macro `chemarrow.sty` in conjunction with the font `arrow.mf` is supposed to make the typesetting of chemical reaction schemes in LaTeX easier and especially nicer looking.

2 Dateien

`arrow.mf`	METAFONT source code of the arrow font
`arrow.tfm`	`.tfm` Datei of arrow for the use with TeX
`chemarrow.sty`	macro for the typesetting of arrows in chemical reaction schemes
`Readme.txt`	English Readme
`testchem.tex`	test file for `chemarrow.sty` and `arrow.mf`
`Liesmich.txt`	German Readme
`Type 1/arrow Mac.sit.hqx`	type 1 version of arrow for Macintosh
`Type 1/arrow PC.zip`	type 1 version of arrow for PC/Unix
`Type 1/arrow.mp`	METAPOST source code of arrow

There is no need to copy the FontLab file `arrow.vfb` included in both of the type 1 archives, I just put it there in case you want to enhance my designs ☺

3 Usage

The examples in the file `testchem.tex` should be sufficient for the understanding of how `chemarrow.sty` works, and there's also a short description in `chemarrow.sty` of all the newly defined commands. To use the package, `arrow.tfm` must be copied to a directory where LaTeX will be searching for `.tfm` files, `arrow.mf` must be copied to a directory where METAFONT will be searching for METAFONT sources. The required `.pk` files should be produced automatically by a DVI previewer or a printer driver.

There are also type 1 fonts of `arrow.mf` in Mac and PC/Unix format so that you can produce PDF documents easily. To use the type 1 font it must be copied to a directory where TeX and friends will be searching for type 1 fonts, the best place would of course be where the Computer Modern type 1 fonts reside.

If dvips is supposed to use the type 1 font instead of the `.pk` font you must add this line to `psfonts.map`:

- for Macintosh:
  `arrow arrow <arrow`
- for PC/Unix:
  `arrow arrow <arrow.pfb`

If you use pdfTeX instead of `dvips` and Acrobat Distiller you must also add this line to `pdftex.map`:

```
arrow <arrow.pfb
```

4 Disclaimer

The macro `chemarrow.sty` and the font `arrow.mf` are quick hacks for my own needs, I cannot guarantee that they will work an other systems than my own. In exchange I am publishing this package as free software which means you can do whatever you like with it and it comes for free. I would just like to ask that in case you do make changes und publish the package or any parts of it to add your own name or replace it with mine. Thank you.

Any hints and suggestions will be accepted gratefully.

5 History

As I was looking for new arrows I found a quite new font named `cryst.mf` by Ulrich Mueller which I rather liked. After a few modifications the new font `arrow.mf` was born.

I received a macro by Andreas Hertwig with which you can typeset arrows that will change in size. I modified this macro to my needs and replaced the original arrows with the arrows from `arrow.mf`. The original macro was apparently posted in a TEX mailing list, but its author is unfortunately unknown. So, if you are the original author and read this I'd like to thank you for your work!

The most time consuming and complicated part was to produce a type 1 font from my METAFONT sources. Unfortunately there is no free software to do this ☹Also, if you include `.pk` fonts into PDF documents you won' get nice results because Acrobat Reader renders them very poorly. Therefore it is vital to include type 1 fonts into a PDF document ☹

Using `arrow.mp` which is a slightly modified `arrow.mf` in combination with METAPOST and `mfplain` I was able to produce graphics in the EPS format which I imported into a demo of FontLab 3.0. After a few steps and reducing the size to 79% I was able to save the font in type 1 format.

6 Problems

Unfortunately I am no expert on creating fonts. This is probably why the arrows will show on some platforms only at 125% or larger. Below 125% there will only be some strokes ☹

I think if someone did a manual hinting of the font then this problem would be remedied, but this will probably not be me because this is out of my league and beyond the time limit of the demo of FontLab ☺

So if there is somebody out there who is able to help me with this problem I'd be grateful.

7 Future versions

To tell you the truth, I don't really know if there will be future versions because as far as I'm concerned the package works as it is supposed to. The direct linking of the arrow font in `chemarrow.sty` is maybe not so nice, so this might be something I will change in the future. The rendering problem of PDF documents on some platforms is also not very nice so if some sort of solution pops up I will publish it.

8 Thank-Yous

- D. E. Knuth for TEX
- L. Lamport for LATEX
- to the LATEX3 team for LATEX 2_ε
- A. Hertwig for being so nice to give me the original macro
- to the unknown author of the original macro
- U. Mueller for `cryst.mf`

9 Author

Thomas Schroeder
`schroeder@ictw.chemie.uni-karlsruhe.de`

PS: Sorry for any misspellings and such, English is not my native language ☺