

Arrows

Mathematical arrows font

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1 Introduction

Arrows is a mathematical arrows font. It's a package that can be used in a \TeX system.

The **Arrows** font, offer to the user several mathematical arrows symbol choices, of shape to be used in the different situations and domains of the scientific document.

\TeX is a system of document treatment developed initially by D. E. Knuth of the Stanford university. It is conceived for the exchange and the transmission of text, a real, language of communication, and the formatting, an excellent capacity of composition, of document. It contains families of fonts **Computer Modern** developed in **METAFONT**. \TeX is a set down mark of American Mathematical Society. **METAFONT** is a set down mark of Addison-Wesley Inc. The format **plain \TeX** has been developed by D. E. Knuth.

The \LaTeX format has been developed initially by L. Lamport. \LaTeX is protected by a free license that is LPPL (*\LaTeX Project Public License*) of \LaTeX 3 Project.

2 Package

2.1 Files

The package **Arrows** is distributed as:

`arrows.zip`: file compressed in ZIP format for Windows or Linux platform.

The decompression package gives the following directory tree:

`readmear.tex`: this file in TEX format for a preliminary description.

`readmear.pdf`: this file in PDF format for a preliminary description.

`lpp1.txt`: license information of the L^AT_EX Project Public License.

`arrows.ttf`: the file of glyphs of font characters in OpenType.

`latex`: the subdirectory of files for L^AT_EX composed of:

`arrows.sty`: the extension of font.

`uarrows.fd`: the file of font definition.

`mf`: the subdirectory of files in METAFONT composed of:

`tabarrows.tex`: the TEX file of font calling `arrows.mf`.

`tabarrows.pdf`: the PDF file of font characters.

`arrows.mf`: the file of glyphs of font characters from `arrows.ttf`.

`arrows.tfm`: the file of glyphs of font characters.

`arrows.600pk`: the file of glyphs of font characters.

2.2 Installation

To install this package, one can put it into a folder intended to be the usual one.

3 Versions

3.1 Historic

- 2006/03/03 v1.1: developed with M. Elyaakoubi of the Cadi Ayyad University.
- the future version will include:
 - more characters;
 - the improvement of glyphs;
 - etc.

3.2 Compatibility

There is a compatibility between the first versions.

The **Arrows** extension is compatible with all extensions that we had the opportunity to use jointly. It can happen that incompatibilities are generated at the time of the utilization of **Arrows** together with other extensions.

4 Preamble

To generate the symbols of the **Arrows** font with the \LaTeX format, the user must insert, in the preamble document, the following command:

```
\usepackage{arrows}
```

5 Commands

(Cf. Figure 1) (Cf. Table 1)

6 Documentation

In [1], we have given a large presentation for Arabic mathematical presentation. In [3], some symbols of this font are proposed to be add to Unicode Standard. In [2] we have gathered all propositions to Unicode Consortium.

	0	1	2	3	4	5	6	7	8	9
0x										
1x										
2x										
3x			\curvearrowright	\curvearrowleft	Φ	\mathbb{M}	\rightarrow	$\boldsymbol{\rightarrow}$	\oplus	\rightsquigarrow
4x	\nrightarrow	\multimap	\dashrightarrow	\dashleftarrow	$\cdots\rightarrow$	\nleftarrow	\nrightarrow	\dashrightarrow	\nrightarrow	\nrightarrow
5x	\curvearrowright	\nrightarrow	\nrightarrow	\nrightarrow	\nrightarrow	\nrightarrow	\nrightarrow	\curvearrowright	\rightsquigarrow	\nrightarrow
6x	\nrightarrow	\nrightarrow	$\boldsymbol{\rightarrow}$	\oplus	\rightsquigarrow	\nrightarrow	\nrightarrow	\nrightarrow	\nrightarrow	\nrightarrow
7x	\nrightarrow	\nrightarrow	\nrightarrow	\nrightarrow	\nrightarrow	\nrightarrow	\nrightarrow	\nrightarrow	\nrightarrow	\nrightarrow
8x	\nrightarrow	\nrightarrow								

Figure 1: Mathematical Arrows font



















































Code	Command	Glyph	Code	Command	Glyph
59	<code>\lscircle</code>		60	<code>\ltree</code>	
63	<code>\lcircledp</code>		64	<code>\llsquiggle</code>	
33	<code>\lsquiggle</code>		65	<code>\lthvstroke</code>	
66	<code>\lthdvstroke</code>		67	<code>\lthfbar</code>	
68	<code>\lthtdash</code>		69	<code>\ldottedds</code>	
70	<code>\ltvstroke</code>		71	<code>\ltdvstroke</code>	
72	<code>\lthtail</code>		73	<code>\lthtvstroke</code>	
74	<code>\lthtdvstroke</code>		76	<code>\lthroughx</code>	
75	<code>\lwavep</code>		32	<code>\lwave</code>	
77	<code>\lequalsa</code>		78	<code>\ltildeoa</code>	
79	<code>\laalmostet</code>		80	<code>\rtlesst</code>	
81	<code>\rtsubset</code>		34	<code>\rscircle</code>	
35	<code>\rtree</code>		38	<code>\rcircledp</code>	
39	<code>\rlsquiggle</code>		58	<code>\rsquiggle</code>	
40	<code>\rthvstroke</code>		41	<code>\rthdvstroke</code>	
42	<code>\rthfbar</code>		43	<code>\rthtdash</code>	
44	<code>\rdottedds</code>		45	<code>\rtvstroke</code>	
46	<code>\rtdvstroke</code>		47	<code>\rthtail</code>	
48	<code>\rthtailvstroke</code>		49	<code>\rthtaildvstroke</code>	
51	<code>\rthroughx</code>		50	<code>\rwavep</code>	
57	<code>\rwave</code>		52	<code>\requalsa</code>	
53	<code>\rtildoa</code>		54	<code>\raalmostet</code>	
55	<code>\ltlesst</code>		56	<code>\ltsubset</code>	
61	<code>\ltriangleh</code>		62	<code>\lhtriangleh</code>	
36	<code>\rtriangleh</code>		37	<code>\rhtriangleh</code>	

Table 1: Mathematical arrows font **Arrows**

7 Copyright

Arrows is copyrighted. The system and its source program's are in the public domain. That will encourage its use in one hand, and in the other hand, it allow its extension and improvement. The system is copyright only in order to forbid unauthorized copies.

However, you may use it freely for any scientific, experimental and strictly personal, non-commercial purposes if you give proper credit to the author. All other uses require a separate written license from the author.

This program may be distributed and/or modified under the conditions of the L^AT_EX Project Public License, either version 1.2 of this license or any later version.

The latest version of this license is in:

<http://www.latex-project.org/lppl.txt>

and version 1.2 or later is part of all distributions of L^AT_EX version 1999/12/01 or later.

This program consists of all files listed in this file `readmear.tex`.

The **Arrows** project is far from finished. It supposed to change without prior notice.

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8 Acknowledgements

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References

- [1] Azzeddine Lazrek, *Vers un système de traitement du document scientifique arabe*, Thèse d'État ès-Science, Université Cadi Ayyad, Marrakech, 2002.
- [2] Azzeddine Lazrek, *Arabic mathematical symbols for Unicode*,
`http://www.ucam.ac.ma/fssm/rydarab/english/unicode.htm`.
- [3] Azzeddine Lazrek, *Diverse mathematical symbols for Arabic*,
`http://www.ucam.ac.ma/fssm/rydarab/doc/unicode/amds1.pdf`.