

Typesetting vectors with beautiful arrow with $\text{\LaTeX} 2_{\epsilon}$

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Abstract

The package `esvect.sty` allows typesetting vectors. Several arrows are available.

1 Installation

Run $\text{\LaTeX} 2_{\epsilon}$ on `esvect.ins` to generate files:

1. Put `esvect.sty` on `TEXINPUT`.
2. Put `uesvect.fd` on `TEXINPUT`, for example with `esvect.sty`.
3. Put `vect5.mf`, `vect6.mf`, `vect7.mf`, `vect8.mf`, `vect9.mf` and `vect10.mf` on `MFINPUT`.

Run METAFONT on *.mf file to generate *.tfm files. For example:

```
mf \mode=localfont; input vect5.mf
Put vect5.tfm, ..., vect10.tfm on the right place.
```

2 Using esvect

Load the package with `\usepackage{esvect}`, and enjoy!

To obtain a vector, use the command `\vv{arg}`.

For example, `\vv{E}`, `\vv{AB}`, `\vv{\imath}` and `\vv{u}` give \vec{E} , \vec{AB} , \vec{i} and \vec{u} .

A star version `\vv*{arg}{ind}` is available to typeset correctly a vector with a subscript: `\vv*{e}{r}` and `\vv*{L}{\Delta}` give \vec{e}_r and \vec{L}_{Δ} .

Height different arrows are available. You have to select one using an option when you load the package: `\usepackage[a]{esvect}`, ..., `\usepackage[h]{esvect}`. The option `d` is selected by default.

Corresponding arrows are:

option	a	b	c	d	e	f	g	h
flèche	→	→	→	→	→	→	→	→

The size of the arrow is automatically calculated according to the math environment:

`$$\vv{E}_{\vv{u}_{\vv{u}}}$` gives

$$\vec{E}_{\vec{u}_{\vec{u}}}$$

3 The code

The package identifies himself

```
1 %<*package>
2 \NeedsTeXFormat{LaTeX2e}
3 \ProvidesPackage{esvect}
```

Definition of the symbol font:

```
4 \DeclareSymbolFont{esvector}      {U}{esvect}{m}{n}
```

Options processing:

```
5 \DeclareMathSymbol{\fldr}{\mathrel}{esvector}'024} %default
6 \DeclareOption{a}{\DeclareMathSymbol{\fldr}{\mathrel}{esvector}'021}}
7 \DeclareOption{b}{\DeclareMathSymbol{\fldr}{\mathrel}{esvector}'022}}
8 \DeclareOption{c}{\DeclareMathSymbol{\fldr}{\mathrel}{esvector}'023}}
9 \DeclareOption{d}{\DeclareMathSymbol{\fldr}{\mathrel}{esvector}'024}}
10 \DeclareOption{e}{\DeclareMathSymbol{\fldr}{\mathrel}{esvector}'025}}
11 \DeclareOption{f}{\DeclareMathSymbol{\fldr}{\mathrel}{esvector}'026}}
12 \DeclareOption{g}{\DeclareMathSymbol{\fldr}{\mathrel}{esvector}'027}}
13 \DeclareOption{h}{\DeclareMathSymbol{\fldr}{\mathrel}{esvector}'030}}
14 \ProcessOptions\relax
```

Definition of the lines:

```
15 \DeclareMathSymbol{\montraita}{\mathrel}{esvector}'040}
16 \DeclareMathSymbol{\montraitd}{\mathrel}{esvector}'043}
17 \def\relbareda{\mathrel{\mathpalette\mathsm@sh\montraita}}
18 \def\relbaredd{\mathrel{\mathpalette\mathsm@sh\montraitd}}
```

Definition of the command:

```
19 \def\v{v}{\ifstar{\vvstar}{\vecteur}}
20 \def\vvstar#1#2{\vecteur{#1}_{\mkern-1mu\relax#2}}
21 \newcommand{\vecteur}{%
22   \mathpalette{\overvect@\vectfill@}}
```

Definition of the characters used to draw the vector:

```
23 \def\vectfill@{\traitfill@\relbaredd\relbareda\fldr}
24 %\end{macrocode}
25 %Construction of the arrow:
26 %   \begin{macrocode}
27 \def\traitfill@#1#2#3#4{%
28   $\m@th\mkern2mu\relax#4#1\mkern-1.5mu%on met \relbaredd au d'ebut
29   \cleaders\hbox{#4\mkern0mu#2\mkern0mu}\hfill%remplit avec relbareda
30   \mkern-1.5mu#3%
31 }
```

Construction of the whole vector:

```
32 \def\overvect@#1#2#3{\vbox{\ialign{##\crrc}%
33   \noalign{\kern-.7pt\nointerlineskip}#1#2\crrc%
34   \noalign{\kern-.3pt\nointerlineskip}$\m@th\hfil#2#3\hfil$\crrc}}
35 %</package>
36 %<*fdfile>
```

Font definition file:

```
37 \ProvidesFile{uesvect.fd}
38 \DeclareFontFamily{U}{esvect}{}
39 \DeclareFontShape{U}{esvect}{m}{n}{%
```

```
40      <5><6><7><8><9><10>gen*vect%
41      <10.95><12><14.4><17.28><20.74><24.88>vect10%
42      }{}
43 %</fdfile>
```