cmarrows

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This MetaPost package contains macros to draw arrows and braces in the cm-style. Table 1 shows which arrows are included in the package.

Installation

First you must get the package from

`http://www.math.kth.se/`
`~ekola/cm_arrows.html`

You unpack the file `cmarrows.tgz` in a directory where MetaPost will look. In a tds-tree I suggest the directory `$TEXMF/metapost/cmarrows/` (and don't forget to update the `ls-R` database), but it's probably better to first install it in a temporary directory where you can test the package.

How to use arrows

First you add the line

```
input cmarrows
```

to the top of your MetaPost file. This included file does not define any arrow macros but it defines the macro `setup_cmarrows`. You use this macro when you want to define an arrow. For example, to use the `texarrow` ($\longrightarrow$) you write

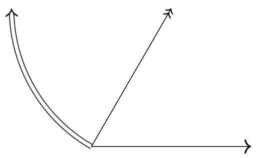
```
setup_cmarrows(
  arrow_name     = "texarrow";
  parameter_file = "cmr10.mf";
  macro_name     = "my_arrow");
```

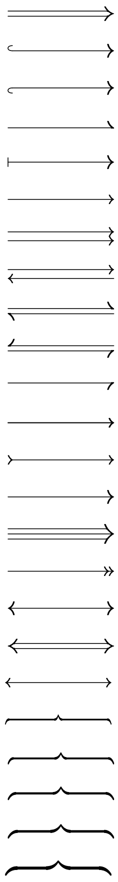
This will define a macro called `my_arrow` which can be used in the same way as the ordinary arrow macro `drawarrow` in MetaPost. The `parameter_file` argument to `setup_cmarrows` fixes the parameters controlling the shape of the arrow. In this way you can for example define a `smallarrow` ($\longrightarrow$) by writing

```
setup_cmarrows(
  arrow_name     = "texarrow";
  parameter_file = "cmr6.mf";
  macro_name     = "smallarrow");
```

Table 1 shows all the arrows you can use.

Example





`doublearrow`
`hookleftarrow`
`hookrightarrow`
`lefthalfarrow`
`mapstoarrow`
`oldtexarrow`
`parallelarrows`
`paralleloppositearrows`
`paralleloppositelefthalfarrows`
`paralleloppositerighthalfarrows`
`righthalfarrow`
`shortaxisarrow`
`tailarrow`
`texarrow`
`tripplearrow`
`twoheadarrow`
`twowayarrow`
`twowaydoublearrow`
`twowayoldarrow`
`bigbrace`
`Bigbrace`
`biggbrace`
`Biggbrace`
`extensiblebrace`

Table 1

```
input cmarrows
setup_cmarrows(
  arrow_name     = "texarrow";
  parameter_file = "cmr10.mf";
  macro_name     = "arrowa");
setup_cmarrows(
  arrow_name     = "twoheadarrow";
  parameter_file = "cmr9.mf";
  macro_name     = "arrowb");
setup_cmarrows(
  arrow_name     = "doublearrow";
  parameter_file = "cmr8.mf";
  macro_name     = "arrowc");
beginfig(1);
  arrowa (0,0)--60pt*dir 0;
  arrowb (0,0)--60pt*dir 60;
  arrowc (0,0)..{up}60pt*dir 120;
endfig;
end
```

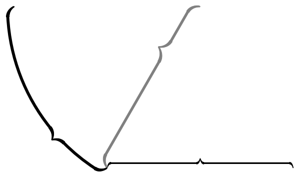
How to use braces

Using braces works the same way as with arrows. You write

```
setup_cmarrows(
  brace_name     = "bigbrace";
  parameter_file = "cmr10.mf";
  macro_name     = "my_brace");
```

to define a big brace-macro `my_brace`. This also defines a parameter `my_brace_middle_time` which controls at which path time the middle piece of the brace is drawn.

Example



```
input cmarrows;
setup_cmarrows(
  brace_name     = "bigbrace";
  parameter_file = "cmr10.mf";
  macro_name     = "bracea");
setup_cmarrows(
  brace_name     = "Biggbrace";
  parameter_file = "cmr12.mf";
  macro_name     = "braceb");
setup_cmarrows(
  brace_name     = "extensiblebrace";
  parameter_file = "cmr9.mf";
  macro_name     = "bracec");
beginfig(1);
  bracea (0,0)--70pt*dir 0;
  braceb_middle_time:=0.7;
  braceb (0,0)--70pt*dir 60
    withcolor 0.5*white;
  bracec_middle_time:=0.3;
  bracec (0,0)..{up}70pt*dir 120;
endfig;
end
```

Improvements

This package isn't finished. More arrows need to be added and this document must be improved. I reserve the right to change any name in table 1 (I'm not altogether happy with `parallelopposi-terighthalfarrows`). If you have suggestions for better names please tell me! When this package has reached a final form I plan to upload it to ctan. If you have found a bug, inconsistency or have suggestions, comments I encourage you to send them to me.

Acknowledgement

The code for the arrows and braces is from Donald Knuth's volume E and the ams fonts. I had good help getting started by looking at the `drawarrow` macro in MetaPost.

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