cmarrows

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

Installation

First you must download the package from CTAN located in the directory

`graphics/metapost/contrib/macros/cmarrows`

You unpack the files on your computer 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` (→) you write

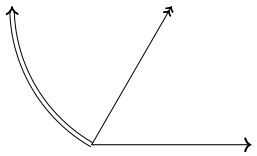
```
setup_cmarrows(
  arrow_name     = "texarrow";
  parameter_file = "cmr10.mf";
  macro_name     = "my_arrow");
```

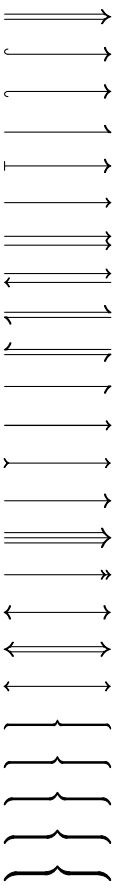
This will define a macro called `my_arrow` which can be used in much the same way as the ordinary arrow macro `drawarrow` in MetaPost. The `parameter_file` argument to `setup_cmarrows` fixes the parameters controlling the shape of the arrow. In this way you can for example define a smaller `texarrow` (→) 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
```

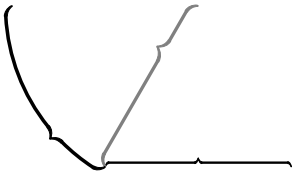
How to use braces

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
```

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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