The `eucal` and `euscript` packages

Frank Mittelbach Rainer Schöpf
Michael Downes
Revised by David M. Jones

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1 Introduction

This package was written originally by Frank Mittelbach and Rainer Schöpf; later it was moved into the AMSFonts distribution with only minor modifications. It can be used with LaTeX 2ε with no dependency on the `amsmath` package.

This file sets up some font shape definitions to use the Euler script symbols in math mode. These fonts are part of the AMSFonts collection which can be found on many TeX servers. It is also directly available from the AMS and from TeX user groups.

`\EuScript` The expected normal use of the Euler Script alphabet is as a substitute for the Computer Modern calligraphic alphabet found in `cmsy`. Therefore we change the meaning of `\mathcal`.

```
\[ \mathcal{A} = \EuScript{A} \neq \CMcal{A} \]
```

will produce

$$\mathcal{A} = \mathcal{A} \neq \mathcal{A}$$

Here is a complete table of the beautiful letters drawn by Hermann Zapf:

$\mathcal{A}$	$\mathcal{B}$	$\mathcal{C}$	$\mathcal{D}$	$\mathcal{E}$	$\mathcal{F}$	$\mathcal{G}$	$\mathcal{H}$	$\mathcal{I}$
$\mathcal{J}$	$\mathcal{K}$	$\mathcal{L}$	$\mathcal{M}$	$\mathcal{N}$	$\mathcal{O}$	$\mathcal{P}$	$\mathcal{Q}$	$\mathcal{R}$
$\mathcal{S}$	$\mathcal{T}$	$\mathcal{U}$	$\mathcal{V}$	$\mathcal{W}$	$\mathcal{X}$	$\mathcal{Y}$	$\mathcal{Z}$	

2 The Implementation

Package identification.

```
\NeedsTeXFormat{LaTeX2e}% LaTeX 2.09 can't be used (nor non-LaTeX)
[1994/12/01]% LaTeX date must be December 1994 or later
⟨euscript⟩\ProvidesPackage{euscript}[2009/06/22 v3.00 Euler Script fonts]
⟨eucal⟩\ProvidesPackage{eucal}[2009/06/22 v3.00 Euler Script fonts]
```

We have three things to do: 1) identify the current package, 2) enlarge the font shape tables and 3) define the ⟨*math alphabet identifier*⟩.

\EuScript Now we define the ⟨*math alphabet identifier*⟩ \EuScript both for the normal and the bold math version

```
\DeclareMathAlphabet\EuScript{U}{eus}{m}{n}
\SetMathAlphabet\EuScript{bold}{U}{eus}{b}{n}
```

For flexibility and backward compatibility with versions 2.1c and earlier, we save the old meaning of \mathcal as \CMcal, and use \EuScript as the initial name of the new math alphabet. Notice that we don't do any checking to make sure the previous version of \mathcal actually refers to cmsy.

```
\newcommand{\CMcal}{}
\let\CMcal=\mathcal
```

See the amsfonts package documentation for a discussion of the obsolescence of the psamfonts option.

```
\DeclareOption{psamsfonts}{}
```

Here is a table describing the action of the eucal, euscript, and eufrak packages.

Package	Option	Commands provided
eucal	none	\mathcal
eucal	[mathcal]	\mathcal
eucal	[mathscr]	\mathscr (\mathcal unchanged)
euscript	none	\EuScript (obsolete)
euscript	[mathcal]	\mathcal
eufrak	none	\mathfrak (also obsolete \EuFrak for compatibility)

```
\DeclareOption{mathcal}{\renewcommand{\mathcal}{\EuScript}}
\DeclareOption{mathscr}{%
  \providecommand{\mathscr}{}\renewcommand{\mathscr}{\EuScript}%
⟨eucal⟩  \let\mathcal=\CMcal
}
```

Process the package options.

```
⟨eucal⟩\ExecuteOptions{mathcal}
\ProcessOptions
```

The usual \endinput to ensure that random garbage at the end of the file doesn't get copied by docstrip.

```
\endinput
```