

# The St Mary's Road symbol font

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## 1 Introduction

This is a brief guide to the St Mary's Road symbol font, a new symbol font for  $\text{\TeX}$  and  $\text{\LaTeX}$ . It is designed to live with the American Mathematical Society's fonts, contained in `amssymb.sty`.

It provides a number of new symbols, including ones for derivation of functional programming (such as  $\gamma$ ,  $\pm$  and  $\wedge$ ), process algebra ( $\parallel$ ,  $\square$  and  $\lhd$ ), domain theory ( $\sqcap$ ), linear logic ( $\&$  and  $\wp$ ), multisets ( $\{x\}$ ,  $\oplus$ , and  $\sqsubseteq$ ) and many more. It also fixes some ‘features’ with previous symbols ( $\oplus$  used not to be circular, now you can use  $\oplus$  instead) and adds obvious variants of others (such as  $\leftarrow$ ,  $\Rightarrow$  and  $\Leftarrow$ ). It is all wrapped up in a  $\text{\LaTeX} 2\varepsilon$  package called `stmaryrd`, which can be used by saying:

```
\usepackage{stmaryrd}
```

This package understands a large number of options:

- `heavycircles` says that all of the circular operators such as `\oplus` and `\otimes` should by default be heavy, and that `\varoplus` and `\varotimes` should refer to the light ones.
- `only` says that only the symbols listed in the option list should be defined. For example:

```
\usepackage[only,mapsfrom,Mapsto,Mapsfrom]{stmaryrd}
```

says that only the symbols ‘ $\leftarrow$ ’, ‘ $\Rightarrow$ ’ and ‘ $\Leftarrow$ ’ should be defined, which is useful if you use a  $\text{\TeX}$  implementation with limited memory.

## 2 Symbols

The following operators are defined:

$\gamma$ \Ydown	$\prec$ \Yleft	$\succ$ \Yright
$\wedge$ \Yup	$\phi$ \baro	$\backslash\backslash$ \bbslash
$\&$ \binampersand	$\wp$ \bindnasrepma	$\boxast$ \boxast
$\sqcap$ \boxbar	$\boxdot$ \boxbox	$\boxslash$ \boxbslash
$\sqcup$ \boxcircle	$\boxdot$ \boxdot	$\boxempty$ \boxempty

$\square \backslash boxslash$	$\vee \backslash curlyveedownarrow$	$\triangleright \backslash curlyveeuparrow$
$\nwarrow \backslash curlywedgedownarrow$	$\wedge \backslash curlywedgeuparrow$	$\swarrow \backslash fatbslash$
$\ddot{\circ} \backslash fatsemi$	$\diagup \backslash fatslash$	$\parallel \backslash interleave$
$\lhd \backslash leftslice$	$\amalg \backslash merge$	$\ominus \backslash minuso$
$\pm \backslash moo$	$\oplus \backslash nplus$	$\odot \backslash obar$
$\square \backslash oblong$	$\oslash \backslash obslash$	$\oslash \backslash greaterthan$
$\oslash \backslash olessthan$	$\oslash \backslash ovee$	$\oslash \backslash owedge$
$\rhd \backslash rightslice$	$// \backslash sslash$	$\parallel \backslash talloblong$
$\bigcirc \backslash varbigcirc$	$\vee \backslash varcurlyvee$	$\wedge \backslash varcurlywedge$
$\circledast \backslash varoast$	$\odot \backslash varobar$	$\oslash \backslash varobslash$
$\circledcirc \backslash varocircle$	$\odot \backslash varodot$	$\oslash \backslash varogreaterthan$
$\oslash \backslash varolessthan$	$\ominus \backslash varominus$	$\oplus \backslash varoplus$
$\oslash \backslash varoslash$	$\otimes \backslash varotimes$	$\oslash \backslash varovee$
$\oslash \backslash varowedge$	$\times \backslash vartimes$	

(CAR) Added by Chris Rowley, March 2004:

If the `amssymb` package has been loaded then the following are also defined:  
 $\backslash oast$  and  $\backslash ocircle$ . The following large operators are defined:

$\square \backslash bigbox$	$\bigvee \backslash bigcurlyvee$	$\bigwedge \backslash bigcurlywedge$
$\parallel \backslash biginterleave$	$\bigoplus \backslash bignplus$	$\parallel \backslash bigparallel$
$\square \backslash bigsqcap$	$\bigtriangledown \backslash bigtriangledown$	$\bigtriangleup \backslash bigtriangleup$

The following relations are defined:

$\in \backslash inplus$	$\ni \backslash niplus$	$\not\trianglelefteq \backslash ntrianglelefteqslant$
$\not\trianglelefteq \backslash ntrianglerighteqslant$	$\subseteq \backslash subsetplus$	$\subseteq \backslash subsetplusq$
$\supsetplus \backslash supsetplus$	$\supsetplus \backslash supsetplusq$	$\trianglelefteq \backslash trianglelefteqslant$
$\trianglerighteq \backslash trianglerighteqslant$		

The following arrows are defined:

$\Longleftarrow \backslash Longmapsfrom$	$\Longrightarrow \backslash Longmapsto$	$\Leftarrow \backslash Mapsfrom$
$\Rightarrow \backslash Mapsto$	$\leftarrow \backslash leftarrowtriangle$	$\Rightarrow \backslash leftrightarroweq$
$\leftrightarrow \backslash leftrightarrowtriangle$	$\not\lightning \backslash lightning$	$\leftarrow \backslash longmapsfrom$
$\leftarrow \backslash mapsfrom$	$\nearrow \backslash nnarrow$	$\nwarrow \backslash nnarrow$
$\rightarrow \backslash rightarrowtriangle$	$\not\right \backslash rrparenthesis$	$\downarrow \backslash shortdownarrow$
$\leftarrow \backslash shortleftarrow$	$\rightarrow \backslash shortrightarrow$	$\uparrow \backslash shortuparrow$
$\searrow \backslash ssearrow$	$\not\swarrow \backslash ssarrow$	

The following delimiters are defined:

$\{ \backslash Lbag$	$\} \backslash Rbag$	$\} \backslash lbag$
$\llbracket \backslash llbracket$	$\rrbracket \backslash llceil$	$\rrbracket \backslash llfloor$
$\{ \backslash lparenthesis$	$\} \backslash rbag$	$\} \backslash rrbracket$
$\llbracket \backslash rrceil$	$\rrbracket \backslash rrfloor$	

Note that  $\backslash llbracket$  and  $\backslash rrbracket$  are ‘growing’ delimiters that can be used with  $\backslash left$  and  $\backslash right$ :

$$\begin{array}{ccccccc} [\mathcal{P}] & \llbracket \mathcal{P} \rrbracket & \left[ \begin{smallmatrix} a \oplus b \\ \bigcup_{i \in I} P_i \end{smallmatrix} \right] & \left[ \begin{smallmatrix} a \\ b \\ c \end{smallmatrix} \right] & \left[ \begin{smallmatrix} a \\ b \\ c \\ d \\ e \\ f \end{smallmatrix} \right] \end{array}$$

The following special characters are used in building others:

<code>\Arrownnot</code>	<code>\Mapsfromchar</code>	<code>\Mapstochar</code>
<code>\arrownot</code>	<code>\mapsfromchar</code>	

For example, if you type `\Arrownnot\Rightarrow` you get  $\Rightarrow$ , and if you type `\arrownot\rightarrowtriangle` you get  $\not\rightarrow$ .

## Acknowledgements

Thanks to David Murphy for suggestions in the design of the St Mary's Road font. Thanks to Martin Ward for the first pass of converting the `stmaryrd` package to L<sup>A</sup>T<sub>E</sub>X 2 <sub>$\varepsilon$</sub> . Thanks to Simon Mercer for all the wine at 45 St. Mary's Road.

## Legal rubbish

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This package may be distributed under the terms of the L<sup>A</sup>T<sub>E</sub>X Project Public License, as described in `lppl.txt` in the base L<sup>A</sup>T<sub>E</sub>X distribution. Either version 1.0 or, at your option, any later version.

## 3 Installation

To begin with, the `stmaryrd` package is installed by running L<sup>A</sup>T<sub>E</sub>X 2 <sub>$\varepsilon$</sub>  on this document, so we begin with the installation procedure. This needs to use L<sup>A</sup>T<sub>E</sub>X 2 <sub>$\varepsilon$</sub> :

```
1 {*install}
2 \NeedsTeXFormat{LaTeX2e}
```

First of all, we write out a little `.ins` file which creates the `stmaryrd` package:

```
3 \begin{filecontents}{stmaryrd.ins}
4   \generateFile{stmaryrd.sty}{f}{
5     \from{stmaryrd.dtx}{package}}
6   \generateFile{Ustmary.fd}{f}{
7     \from{stmaryrd.dtx}{fontdef}}
8 \end{filecontents}
```

Then we do some horrible low-level hacks to run `docstrip` on `stmaryrd.ins`:

```
9 \bgroup
10  \makeatletter
11  \let\@end=\relax
12  \def\batchfile{stmaryrd.ins}
13  \input{docstrip}
14 \egroup
```

That's it for the installation:

```
15 
```

## 4 Documentation

We now provide the documentation driver for this document:

```
16 <*driver>
17 \documentclass{ltxdoc}
18 \DisableCrossrefs
19 \OnlyDescription
20 \usepackage{stmaryrd}

\symbols Some hacks that are used in the documentation:
\endsymbols 21 \def\symbols{\flushleft}
\dosymbol 22 \def\endsymbols{\endflushleft}
\test 23 \def\dosymbol#1{\leavevmode\hbox to .33\textwidth{\hbox to 1.2em
24   {\hss$#1$\hfil}\footnotesize\tt\string#1\hss}\penalty10}
25 \def\test#1{\par\leavevmode\llap{\#1\tt\string#1:}
26   \rlap{\#1\left\llbracket\bigbox_i \inplus I\right.^{\{a \varoplus b\}} P_i
27   \right\rrbracket\$}}
```

Then we produce the documentation:

```
28 \begin{document}
29   \DocInput{stmaryrd.dtx}
30 \end{document}
31 </driver>
```

## 5 The package

We can now implement the `stmaryrd` package.

```
32 <*package>
33 \NeedsTeXFormat{LaTeX2e}
34 \ProvidesPackage{stmaryrd}[1994/03/03 St Mary's Road symbol package]

\stmry@if Most definitions in this file are preceded by \stmry@if, which sets its second argument
           to be undefined, and expands to \iftrue if its second argument is going to be
           defined, for example:
\stmry@if\def\foo{baz}\fi
```

By default, this is always true.

```
35 \def\stmry@if#1#2{\let#2=\@undefined\iftrue#1#2}
```

```
\ds@only The only option causes \stmry@if to be true only when its second argument is
\stmry@only defined to be \relax.
36 \DeclareOption{only}{\let\stmry@if=\stmry@only}
37 \def\stmry@only#1#2{\ifx#2\relax\let#2=\@undefined#1#2}
```

```
\ds@heavycircles The heavycircles option makes sure all of the heavy circles are defined, and sets
\ifstmry@heavy@
38 \newif\ifstmry@heavy@
39 \stmry@heavy@false
40 \DeclareOption{heavycircles}{%
41   \stmry@option{varotimes}\stmry@option{varoast}%
```

```

42  \stmry@option{varobar}\stmry@option{varodot}%
43  \stmry@option{varoslash}\stmry@option{varobslash}%
44  \stmry@option{varocircle}\stmry@option{varoplus}%
45  \stmry@option{varominus}\stmry@option{varbigcirc}%
46  \stmry@heavy@true
47 }

\stmry@option For every other option, we call \stmry@option, which defines its argument to be \relax.
48 \def\stmry@option#1{\expandafter\let\csname#1\endcsname\relax}
49 \DeclareOption*{\stmry@option\CurrentOption}

\ds@Mapsto All of the other options for stmaryrd are command names. Some of the commands
\ds@mapsfrom need others to be defined, so we declare these explicitly.
\ds@Mapsfrom
50 \DeclareOption{Mapsto}{%
\ds@longarrownot 51   \stmry@option{Mapsto}%
\ds@Longarrownot 52   \stmry@option{Mapstochar}%
\ds@longmapsto 53 }
\ds@Longmapsto 54 \DeclareOption{mapsfrom}{%
\ds@longmapsfrom 55   \stmry@option{mapsfrom}%
56   \stmry@option{mapsfromchar}%
\ds@Longmapsfrom 57 }
58 \DeclareOption{Mapsfrom}{%
59   \stmry@option{Mapsfrom}%
60   \stmry@option{Mapsfromchar}%
61 }
62 \DeclareOption{longarrownot}{%
63   \stmry@option{longarrownot}%
64   \stmry@option{arrownot}%
65 }
66 \DeclareOption{Longarrownot}{%
67   \stmry@option{Longarrownot}%
68   \stmry@option{Arrownot}%
69 }
70 \DeclareOption{Longmapsto}{%
71   \stmry@option{Longmapsto}%
72   \stmry@option{Mapstochar}%
73 }
74 \DeclareOption{longmapsfrom}{%
75   \stmry@option{longmapsfrom}%
76   \stmry@option{mapsfromchar}%
77 }
78 \DeclareOption{Longmapsfrom}{%
79   \stmry@option{Longmapsfrom}%
80   \stmry@option{Mapsfromchar}%
81 }

```

Then we can process the options!

```
82 \ProcessOptions
```

Declare the symbol fonts:

```
83 \DeclareSymbolFont{stmry}{U}{stmry}{m}{n}
84 \SetSymbolFont{stmry}{bold}{U}{stmry}{b}{n}
```

Then we load those symbols!

```
85 \stmry@if\DeclareMathSymbol\shortleftarrow\mathrel{stmry}{"00}\fi
86 \stmry@if\DeclareMathSymbol\shortrightarrow\mathrel{stmry}{"01}\fi
87 \stmry@if\DeclareMathSymbol\shortuparrow\mathrel{stmry}{"02}\fi
88 \stmry@if\DeclareMathSymbol\shortdownarrow\mathrel{stmry}{"03}\fi
89 \stmry@if\DeclareMathSymbol\Yup\mathbin{stmry}{"04}\fi
90 \stmry@if\DeclareMathSymbol\Ydown\mathbin{stmry}{"05}\fi
91 \stmry@if\DeclareMathSymbol\Yleft\mathbin{stmry}{"06}\fi
92 \stmry@if\DeclareMathSymbol\Yright\mathbin{stmry}{"07}\fi
93 \stmry@if\DeclareMathSymbol\varcurlyvee\mathbin{stmry}{"08}\fi
94 \stmry@if\DeclareMathSymbol\varcurlywedge\mathbin{stmry}{"09}\fi
95 \stmry@if\DeclareMathSymbol\minuso\mathbin{stmry}{"0A}\fi
96 \stmry@if\DeclareMathSymbol\baro\mathbin{stmry}{"0B}\fi
97 \stmry@if\DeclareMathSymbol\sslash\mathbin{stmry}{"0C}\fi
98 \stmry@if\DeclareMathSymbol\bbslash\mathbin{stmry}{"0D}\fi
99 \stmry@if\DeclareMathSymbol\moo\mathbin{stmry}{"0E}\fi
100 \stmry@if\DeclareMathSymbol\varotimes\mathbin{stmry}{"0F}\fi
101 \stmry@if\DeclareMathSymbol\varoast\mathbin{stmry}{"10}\fi
102 \stmry@if\DeclareMathSymbol\varobar\mathbin{stmry}{"11}\fi
103 \stmry@if\DeclareMathSymbol\varodot\mathbin{stmry}{"12}\fi
104 \stmry@if\DeclareMathSymbol\varoslash\mathbin{stmry}{"13}\fi
105 \stmry@if\DeclareMathSymbol\varobslash\mathbin{stmry}{"14}\fi
106 \stmry@if\DeclareMathSymbol\varocircle\mathbin{stmry}{"15}\fi
107 \stmry@if\DeclareMathSymbol\varoplus\mathbin{stmry}{"16}\fi
108 \stmry@if\DeclareMathSymbol\varominus\mathbin{stmry}{"17}\fi
109 \stmry@if\DeclareMathSymbol\boxast\mathbin{stmry}{"18}\fi
110 \stmry@if\DeclareMathSymbol\boxbar\mathbin{stmry}{"19}\fi
111 \stmry@if\DeclareMathSymbol\boxdot\mathbin{stmry}{"1A}\fi
112 \stmry@if\DeclareMathSymbol\boxslash\mathbin{stmry}{"1B}\fi
113 \stmry@if\DeclareMathSymbol\boxbslash\mathbin{stmry}{"1C}\fi
114 \stmry@if\DeclareMathSymbol\boxcircle\mathbin{stmry}{"1D}\fi
115 \stmry@if\DeclareMathSymbol\boxbox\mathbin{stmry}{"1E}\fi
116 \stmry@if\DeclareMathSymbol\boxempty\mathbin{stmry}{"1F}\fi
117 \stmry@if\DeclareMathSymbol\lightning\mathord{stmry}{"20}\fi
118 \stmry@if\DeclareMathSymbol\merge\mathbin{stmry}{"21}\fi
119 \stmry@if\DeclareMathSymbol\vartimes\mathbin{stmry}{"22}\fi
120 \stmry@if\DeclareMathSymbol\fatsemi\mathbin{stmry}{"23}\fi
121 \stmry@if\DeclareMathSymbol\sswarrow\mathrel{stmry}{"24}\fi
122 \stmry@if\DeclareMathSymbol\ssearrow\mathrel{stmry}{"25}\fi
123 \stmry@if\DeclareMathSymbol\curlywedgeuparrow\mathrel{stmry}{"26}\fi
124 \stmry@if\DeclareMathSymbol\curlywedgedownarrow\mathrel{stmry}{"27}\fi
125 \stmry@if\DeclareMathSymbol\fatslash\mathbin{stmry}{"28}\fi
126 \stmry@if\DeclareMathSymbol\fatbslash\mathbin{stmry}{"29}\fi
127 \stmry@if\DeclareMathSymbol\lbag\mathbin{stmry}{"2A}\fi
128 \stmry@if\DeclareMathSymbol\rbag\mathbin{stmry}{"2B}\fi
129 \stmry@if\DeclareMathSymbol\varbigcirc\mathbin{stmry}{"2C}\fi
130 \stmry@if\DeclareMathSymbol\leftrightarroweq\mathrel{stmry}{"2D}\fi
131 \stmry@if\DeclareMathSymbol\curlyveedownarrow\mathrel{stmry}{"2E}\fi
132 \stmry@if\DeclareMathSymbol\curlyveeuparrow\mathrel{stmry}{"2F}\fi
133 \stmry@if\DeclareMathSymbol\nnwarrow\mathrel{stmry}{"30}\fi
134 \stmry@if\DeclareMathSymbol\nnearrow\mathrel{stmry}{"31}\fi
135 \stmry@if\DeclareMathSymbol\leftslice\mathbin{stmry}{"32}\fi
136 \stmry@if\DeclareMathSymbol\rightslice\mathbin{stmry}{"33}\fi
137 \stmry@if\DeclareMathSymbol\varolessthan\mathbin{stmry}{"34}\fi
```

```

138 \stmry@if\DeclareMathSymbol\varogreaterthan\mathbin{stmry}{>}\fi
139 \stmry@if\DeclareMathSymbol\varoovee\mathbin{stmry}{>}\fi
140 \stmry@if\DeclareMathSymbol\varowedge\mathbin{stmry}{>}\fi
141 \stmry@if\DeclareMathSymbol\talloblong\mathbin{stmry}{>}\fi
142 \stmry@if\DeclareMathSymbol\interleave\mathbin{stmry}{>}\fi
143 %% (CAR) Added by Chris Rowley, March 2004:
144 \stmry@if\let\oast\circledast\fi
145 \stmry@if\let\ocircle\circledcirc\fi
146 %%
147 \stmry@if\DeclareMathSymbol\obar\mathbin{stmry}{>}\fi
148 \stmry@if\DeclareMathSymbol\obslash\mathbin{stmry}{>}\fi
149 \stmry@if\DeclareMathSymbol\olessthan\mathbin{stmry}{<}\fi
150 \stmry@if\DeclareMathSymbol\ogreaterthan\mathbin{stmry}{>}\fi
151 \stmry@if\DeclareMathSymbol\ovee\mathbin{stmry}{>}\fi
152 \stmry@if\DeclareMathSymbol\owedge\mathbin{stmry}{>}\fi
153 \stmry@if\DeclareMathSymbol\oblone\mathbin{stmry}{>}\fi
154 \stmry@if\DeclareMathSymbol\inplus\mathrel{stmry}{+}\fi
155 \stmry@if\DeclareMathSymbol\inplus\mathrel{stmry}{+}\fi
156 \stmry@if\DeclareMathSymbol\nplus\mathbin{stmry}{+}\fi
157 \stmry@if\DeclareMathSymbol\subsetplus\mathrel{stmry}{+}\fi
158 \stmry@if\DeclareMathSymbol\supsetplus\mathrel{stmry}{+}\fi
159 \stmry@if\DeclareMathSymbol\subsetplusseq\mathrel{stmry}{+}\fi
160 \stmry@if\DeclareMathSymbol\supsetplusseq\mathrel{stmry}{+}\fi
161 \stmry@if\DeclareMathSymbol\Lbag\mathopen{stmry}{(}\fi
162 \stmry@if\DeclareMathSymbol\Rbag\mathclose{stmry}{)}\fi
163
164 \stmry@if\DeclareMathSymbol\llparenthesis\mathopen{stmry}{(}\fi
165 \stmry@if\DeclareMathSymbol\rrparenthesis\mathclose{stmry}{)}\fi
166 \stmry@if\DeclareMathSymbol\binampersand\mathopen{stmry}{&}\fi
167 \stmry@if\DeclareMathSymbol\bindnasrepma\mathclose{stmry}{&}\fi
168 \stmry@if\DeclareMathSymbol\trianglelefteqslant\mathrel{stmry}{<} \fi
169 \stmry@if\DeclareMathSymbol\trianglerighteqslant\mathrel{stmry}{>} \fi
170 \stmry@if\DeclareMathSymbol\ntrianglelefteqslant\mathrel{stmry}{<} \fi
171 \stmry@if\DeclareMathSymbol\ntrianglerighteqslant\mathrel{stmry}{>} \fi
172 \stmry@if\DeclareMathSymbol\lfloor\mathopen{stmry}{[}\fi
173 \stmry@if\DeclareMathSymbol\rfloor\mathclose{stmry}{]}\fi
174 \stmry@if\DeclareMathSymbol\lceil\mathopen{stmry}{[}\fi
175 \stmry@if\DeclareMathSymbol\rceil\mathclose{stmry}{]}\fi
176 \stmry@if\DeclareMathSymbol\arrownot\mathrel{stmry}{\neg}\fi
177 \stmry@if\DeclareMathSymbol\Arrownot\mathrel{stmry}{\neg}\fi
178 \stmry@if\DeclareMathSymbol\Mapstochar\mathrel{stmry}{\rightarrow}\fi
179 \stmry@if\DeclareMathSymbol\mapsfromchar\mathrel{stmry}{\leftarrow}\fi
180 \stmry@if\DeclareMathSymbol\Mapsfromchar\mathrel{stmry}{\leftarrow}\fi
181 %% (CAR) Corrected by Chris Rowley, March 2004:
182 %% \stmry@if\DeclareMathSymbol\leftrightarrowtriangle\mathbin{stmry}{\leftrightarrow}\fi
183 \stmry@if\DeclareMathSymbol\leftrightarrowtriangle\mathrel{stmry}{\leftrightarrow}\fi
184 %%
185 \stmry@if\DeclareMathSymbol\leftarrowtriangle\mathrel{stmry}{\leftarrow}\fi
186 \stmry@if\DeclareMathSymbol\rightarrowtriangle\mathrel{stmry}{\rightarrow}\fi
187 \stmry@if\DeclareMathSymbol\bigtriangledown\mathop{stmry}{\downarrow}\fi
188 \stmry@if\DeclareMathSymbol\bigtriangleup\mathop{stmry}{\uparrow}\fi
189 \stmry@if\DeclareMathSymbol\bigcurlyvee\mathop{stmry}{\vee}\fi
190 \stmry@if\DeclareMathSymbol\bigcurlywedge\mathop{stmry}{\wedge}\fi
191 \stmry@if\DeclareMathSymbol\bigsqcap\mathop{stmry}{\sqcap}\fi

```

```

192 \stmry@if\DeclareMathSymbol{\bigbox}{\mathop{stmry}{"65}}\fi
193 \stmry@if\DeclareMathSymbol{\bigparallel}{\mathop{stmry}{"66}}\fi
194 \stmry@if\DeclareMathSymbol{\biginterleave}{\mathop{stmry}{"67}}\fi
195 \stmry@if\DeclareMathSymbol{\bignplus}{\mathop{stmry}{"70}}\fi
196
197 \stmry@if\DeclareMathDelimiter{\llbracket}{\mathopen{stmry}{"4A}}%
198                                {\mathclose{stmry}{"71}}\fi
199 \stmry@if\DeclareMathDelimiter{\rrbracket}{\mathopen{stmry}{"4B}}%
200                                {\mathclose{stmry}{"79}}\fi

```

The heavy ⓒ:

```

201 \stmry@if\def\varcopyright
202   {{\oalign{\hfil\raise.07ex\hbox{c}\hfil\crcr%
203     \mbox{$\mathbf{m@th}\varbigcirc$}}}}\fi

```

The long arrow negations.

```

204 \stmry@if\def\longarrownot{\mathrel{\mkern5.5mu\arrownot\mkern-5.5mu}}\fi
205 \stmry@if\def\Longarrownot{\mathrel{\mkern5.5mu\Arrownot\mkern-5.5mu}}\fi

```

The variants on ↨:

```

206 \stmry@if\def\Mapsto{\Mapstochar\Rightarrow}\fi
207 \stmry@if\def\mapsfrom{\leftarrow\mapsfromchar}\fi
208 \stmry@if\def\Mapsfrom{\Leftarrow\Mapsfromchar}\fi
209 \stmry@if\def\Longmapsto{\Mapstochar\Longrightarrow}\fi
210 \stmry@if\def\longmapsfrom{\longleftarrow\mapsfromchar}\fi
211 \stmry@if\def\Longmapsfrom{\longleftarrow\Mapsfromchar}\fi

```

The circular circles:

```

212 \ifstmry@heavy@
213   \def\@swap#1#2{\let\@tempa#1\let#1#2\let#2\@tempa}
214   \@swap\varotimes\otimes
215   \@swap\varolessthan\olessthan
216   \@swap\varogreaterthan\ogreaterthan
217   \@swap\varovee\ovee
218   \@swap\varowedge\owedge
219   \@swap\varoast\oast
220   \@swap\varobar\obar
221   \@swap\varodot\odot
222   \@swap\varoslash\oslash
223   \@swap\varobslash\obslash
224   \@swap\varocircle\ocircle
225   \@swap\varoplus\oplus
226   \@swap\varominus\ominus
227   \@swap\varbigcirc\bigcirc
228   \@swap\varcopyright\copyright
229 \fi
230 </package>

```

## 6 The font definitions

The font definitions for the St Mary's Road fonts are:

```

231 <fontdef>
232 \DeclareFontFamily{U}{stmry}{}
233 \DeclareFontShape{U}{stmry}{m}{n}{}

```

```
234 { <5> <6> <7> <8> <9> <10> gen * stmary
235 <10.95><12><14.4><17.28><20.74><24.88>stmary10%
236 }{}
237 </fontdef>
```