

The St Mary's Road symbol font

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Version 2.02a-tmp-CAR, March 2004

1 Introduction

This is a brief guide to the St Mary's Road symbol font, a new symbol font for \TeX and \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 γ , \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 \TeX implementation with limited memory.

2 Symbols

The following operators are defined:

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

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

(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:

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

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:

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

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^AT_EX 2 _{ε} . Thanks to Simon Mercer for all the wine at 45 St. Mary's Road.

Legal rubbish

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3 Installation

To begin with, the `stmaryrd` package is installed by running L^AT_EX 2 _{ε} on this document, so we begin with the installation procedure. This needs to use L^AT_EX 2 _{ε} :

```
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}{\leq}\fi
169 \stmry@if\DeclareMathSymbol\trianglerighteqslant\mathrel{stmry}{\geq}\fi
170 \stmry@if\DeclareMathSymbol\ntrianglelefteqslant\mathrel{stmry}{\leq}\fi
171 \stmry@if\DeclareMathSymbol\ntrianglerighteqslant\mathrel{stmry}{\geq}\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>
```