

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 \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 \forall , \exists and \wedge), process algebra (\parallel , \square and \wp), 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 \hookleftarrow , \Rightarrow and \Leftrightarrow). It is all wrapped up in a $\text{\LaTeX} 2\epsilon$ 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 ' \hookleftarrow ', ' \Rightarrow ' and ' \Leftrightarrow ' should be defined, which is useful if you use a \TeX implementation with limited memory.

2 Symbols

The following operators are defined:

$\forall \text{\Ydown}$	$\prec \text{\Yleft}$	$\succ \text{\Yright}$
$\exists \text{\Yup}$	$\phi \text{\baro}$	$\backslash \text{\bbslash}$
$\& \text{\binampersand}$	$\wp \text{\bindnasrepma}$	$\boxast \text{\boxast}$
$\square \text{\boxbar}$	$\boxbox \text{\boxbox}$	$\boxslash \text{\boxbslash}$
$\boxdot \text{\boxcircle}$	$\boxdot \text{\boxdot}$	$\boxempty \text{\boxempty}$

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

The following large operators are defined:

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

The following relations are defined:

$\in \backslash inplus$	$\ni \backslash niplus$	$\triangleleft \backslash ntrianglelefteqslant$
$\not\triangleleft \backslash ntrianglerighteqslant$	$\subseteq \backslash subsetplus$	$\subseteq \backslash subsetpluseq$
$\supsetplus \backslash supsetplus$	$\supseteq \backslash supsetpluseq$	$\trianglelefteq \backslash trianglelefteqslant$
$\trianglerighteq \backslash trianglerighteqslant$		

The following arrows are defined:

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

The following delimiters are defined:

$\{ \backslash Lbag$	$\} \backslash Rbag$	$\} \backslash lbag$
$\llbracket \backslash llbracket$	$\rrbracket \backslash llceil$	$\llbracket \backslash llfloor$
$\langle \backslash lparentesis$	$\rangle \backslash rbag$	$\rangle \backslash rrbracket$
$\rrbracket \backslash rrceil$	$\rrbracket \backslash rrfloor$	

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

$$\llbracket \mathcal{P} \rrbracket \quad \llbracket \square \mathcal{P} \rrbracket \quad \llbracket \bigcup_{i \in I} P_i \rrbracket \quad \llbracket \begin{matrix} a \\ b \\ c \end{matrix} \rrbracket \quad \llbracket \begin{matrix} a \\ b \\ c \\ d \\ e \\ f \end{matrix} \rrbracket$$

The following special characters are used in building others:

$\backslash\text{\Arrownot}$	$\mid\text{\textbackslash Mapsfromchar}$	$\mid\text{\textbackslash Mapstochar}$
$\text{\textbackslash arrownot}$	$\mid\text{\textbackslash mapsfromchar}$	

For example, if you type $\text{\Arrownot}\text{\Rightarrow}$ you get \Rightarrow , and if you type $\text{\textbackslash arrownot}\text{\rightarrowtriangle}$ you get \rightarrowtail .

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