1 Introduction

This file defines the package `wasysym` which makes some additional characters available that come from the `wasy` fonts (Waldis symbol fonts).

Warning: This style uses version 2 of the `wasy`-fonts. It is not 100 % compatible to the old version 1 from 1989. I have provided no compatibility mode for the old fonts! If some characters come out wrong or are missing, you have to upgrade.

Some of the symbols below can also be found in the EC fonts. Use the `textcomp` package to access these symbols. The `textcomp` package is part of the LaTeX 2_ε distribution.

Other symbols are included in the AMS symbol fonts and can be accessed using either the `amssymb` or the `amsfont` package.

1.1 The math-commands

The following commands require mathmode.

`\Join` ⋈ `\Box` □ `\Diamond` ◇ `\leadsto` ⇝ `\sqsubset` ⊏
`\sqsupset` ⊐ `\lhd` ◁ `\unlhd` ⊴ `\LHD` ◀ `\rhd` ▷ `\unrhd` ⊵
`\RHD` ▶ `\apprle` ≲ `\apprge` ≳ `\wasypropto` ∝ `\invneg` ⌐ `\ocircle` ○
`\logof` ⊛ `\varint` ∫ `\iint` ∬ `\iiint` ∭ `\varoint` ∮ `\oiint` ∯

1.2 General symbol

`\male` ♂ `\female` ♀ `\currency` ¤ `\phone` ☎ `\recorder` ⌕ `\clock` ◷
`\lightning` ϟ `\pointer` ➪ `\RIGHTarrow` ▶ `\LEFTarrow` ◀ `\UParrow` ▲
`\DOWNarrow` ▼ `\diameter` ⌀ `\invdiameter` ⦸ `\varangle` ⦟ `\wasylozenge` ⌑
`\kreuz` ✠ `\smiley` ☺ `\frownie` ☹ `\blacksmiley` ☻ `\sun` ☼
`\checked` ✓ `\bell` ♝ `\ataribox` ◪ `\cent` ¢ `\permil` ‰ `\brokenvert` ¦
`\wasytherefore` ∴ `\Bowtie` ⋈ `\agemO` ℧

1.3 Electrical and physical symbols

`\AC` ∼ `\HF` ≈ `\VHF` ≋ `\photon` ∼∼∼ `\gluon` ෧෧෧෧෧෧

1.4 Polygons and Stars

`\Square` □ `\XBox` ⊠ `\CheckedBox` ☑ `\hexagon` ⬡ `\varhexagon` ⬡
`\pentagon` ⬠ `\octagon` ⯃ `\hexstar` ✳ `\varhexstar` ✳ `\davidsstar` ✡

1.5 Music notes

`\eighthnote` ♪ `\quarternote` ♩ `\halfnote` 𝅗𝅥 `\fullnote` 𝅝 `\twonotes` ♫

1.6 Various circles

`\Circle` ○ `\CIRCLE` ● `\Leftcircle` ◖ `\LEFTCIRCLE` ◖ `\Rightcircle` ◗
`\RIGHTCIRCLE` ◗ `\LEFTcircle` ◐ `\RIGHTcircle` ◑ `\leftturn` ↺
`\rightturn` ↻

1.7 Phonetic signs

\thorn þ \Thorn Þ \dh ð \DH Ð (The old \Dh command will go away in the next release.) \openo ɔ \inve ə

1.8 Astronomical symbols

\vernal ♈ \ascnode ☊ \descnode ☋ \fullmoon ○ \newmoon ● \leftmoon ☾ \rightmoon ☽ \astrosun ☉ \mercury ☿ \venus ♀ \earth ♁ \mars ♂ \jupiter ♃ \saturn ♄ \uranus ♅ \neptune ♆ \pluto ♇

1.9 Astrological symbols and the zodiacal symbols

\aries ♈ \taurus ♉ \gemini ♊ \cancer ♋ \leo ♌ \virgo ♍ \libra ♎ \scorpio ♏ \sagittarius ♐ \capricornus ♑ \aquarius ♒ \pisces ♓ \conjunction ☌ \opposition ☍

1.10 APL-symbols

\APLstar ⋆ \APLlog ⍟ \APLbox ⍞ \APLup ⍙ \APLdown ⍛ \APLinput ⍠ \APLcomment ⍝ \APLinv ⍣ \APLuparrowbox ⍐ \APLdownarrowbox ⍗ \APLleftarrowbox ⍇ \APLrightarrowbox ⍈ \notbackslash ⍀ \notslash ⌿ \APLnot ⍲ \APLvert ⍮ \APLcirc ⍤ \APLminus ⍥

2 The DOCSTRIP modules

The following modules are used in the implementation to direct DOCSTRIP in generating the external files:

driver	produce a documentation driver file
package	produce a package file
fd	produce a font definition file

3 The Implementation

\symwasy It is possible to detect whether or not the wasy symbols are already defined by checking for the math group number with the name \symwasy.

In that case we exit but write a message to the transcript file

```
⟨*package⟩
\ifx\symwasy\undefined \else
  \wlog{Package wasysym: nothing to set up^^J}%
  \endinput
\fi
```

Otherwise we define the new symbol font

```
\DeclareSymbolFont{wasy}{U}{wasy}{m}{n}
\SetSymbolFont{wasy}{bold}{U}{wasy}{b}{n}
```

\wasyfamily
\textwasy

To access the wasy-symbols in text-mode I have defined them as a new fontfamily. Since I only take single characters but don't want to write long text this is not an elegant approach. But it works and the symbols scale according to textsize, which is all I promised.

```
\def\wasyfamily{\fontencoding{U}\fontfamily{wasy}\selectfont}
\DeclareTextFontCommand{\textwasy}{\wasyfamily}
```

We declare some new commands to generate overlayed symbols and to switch to the new integral-signs:

```
%
\def\overstrike#1#2{{\setbox0\hbox{$#2$}\hbox to \wd0{\hss
    $#1$\hss}\kern-\wd0\box0}}
\def\newpropto{\let\propto\wasyvarpropto}
\def\newint{\let\int\varint \let\oint\varoint} % default limits
%
```

\newamsint

Here we define a similar command to use `wasy` (upright) integral symbols in an amsmath document. Load both packages as follows:

```
\usepackage{amsmath}
\usepackage{wasysym}
\newamsint
```

```
\def\newamsint{\let\ointop\varoint  \let\oiintop\oiint
    \let\intop\varint \let\iintop\iint \let\iiintop\iiint
    \def\int{\DOTSI\intop\ilimits@}%
    \def\iint{\DOTSI\iintop\ilimits@}%
    \def\iiint{\DOTSI\iiintop\ilimits@}%
    \def\oint{\DOTSI\ointop\ilimits@}%
    \def\oint{\DOTSI\ointop\ilimits@}%
    \def\oiint{\DOTSI\oiintop\ilimits@}%
    \def\intkern@{\mkern-8mu}%
}
```

Defining some special symbols:

```
\def\male       {\mbox{\wasyfamily\char26}}
\def\female     {\mbox{\wasyfamily\char25}}
\def\currency   {{\wasyfamily\char27}}
\def\phone      {{\wasyfamily\char7}}
\def\recorder   {{\wasyfamily\char6}}
\def\clock      {{\wasyfamily\char28}}
\def\lightning  {{\wasyfamily\char18}}
\def\pointer    {{\wasyfamily\char9}}
\def\RIGHTarrow {{\wasyfamily\char17}}
\def\LEFTarrow  {{\wasyfamily\char16}}
\def\UParrow    {{\wasyfamily\char75}}
\def\DOWNarrow  {{\wasyfamily\char76}}
\def\AC         {\mbox{\kern0.5pt\wasyfamily\char58\kern0.5pt}}
\def\HF         {\leavevmode
        \lower0.9pt\hbox to 0pt{\kern0.5pt\wasyfamily\char58\hss}%
        \raise0.9pt\hbox{\kern0.5pt\wasyfamily\char58\kern0.5pt}}
\def\VHF        {\mbox{\wasyfamily\char64}}
%\def\Box{\mbox{\wasyfamily\char50}}
\def\Square     {\mbox{$\Box$}}
```

```
\def\CheckedBox {\hbox to 0pt{\wasyfamily\char50\hss}\hbox{\wasyfamily\char8}}
\def\XBox       {\mbox{\wasyfamily\char52}}
\def\hexagon    {\mbox{\wasyfamily\char55}}
\def\pentagon   {\mbox{\wasyfamily\char68}}
\def\octagon    {\mbox{\wasyfamily\char56}}
\def\varhexagon {\mbox{\wasyfamily\char57}}
\def\hexstar    {\mbox{\wasyfamily\char65}}
\def\varhexstar {\mbox{\wasyfamily\char66}}
\def\davidsstar {\mbox{\wasyfamily\char67}}
\def\diameter   {\mbox{\wasyfamily\char31}}
\def\invdiameter{\mbox{\wasyfamily\char21}}
\def\varangle   {\mbox{\wasyfamily\char30}}
\def\wasylozenge{\mbox{\wasyfamily\char53}}
\def\kreuz      {\mbox{\wasyfamily\char54}}
\def\smiley     {\mbox{\wasyfamily\char44}}
\def\frownie    {\mbox{\wasyfamily\char47}}
\def\blacksmiley{\mbox{\wasyfamily\char45}}
\def\sun        {\mbox{\wasyfamily\char46}}
\def\checked    {\mbox{\wasyfamily\char8}}
\def\bell       {\mbox{\wasyfamily\char10}}
\def\eighthnote {\mbox{\wasyfamily\char11}}
\def\quarternote{\mbox{\wasyfamily\char12}}
\def\halfnote   {\mbox{\wasyfamily\char13}}
\def\fullnote   {\mbox{\wasyfamily\char14}}
\def\twonotes   {\mbox{\wasyfamily\char15}}
\def\brokenvert {\mbox{\wasyfamily\char124}}
\def\ataribox   {\mbox{\wasyfamily\char109}}
\def\wasytherefore{\mbox{\wasyfamily\char5}}
\def\Circle     {\mbox{\wasyfamily\char35}}
\def\CIRCLE     {\mbox{\wasyfamily\char32}}
\def\Leftcircle {\mbox{\wasyfamily\char73}}
\def\LEFTCIRCLE {\mbox{\wasyfamily\char71}}
\def\Rightcircle{\mbox{\wasyfamily\char74}}
\def\RIGHTCIRCLE{\mbox{\wasyfamily\char72}}
\def\LEFTcircle {\hbox to 0pt{\wasyfamily\char71\hss}\hbox{\wasyfamily\char35}}
\def\RIGHTcircle{\hbox to 0pt{\wasyfamily\char72\hss}\hbox{\wasyfamily\char35}}
%% astronomy
\def\vernal     {\mbox{\wasyfamily\char23}}
\def\ascnode    {\mbox{\wasyfamily\char19}}
\def\descnode   {\mbox{\wasyfamily\char20}}
\let\fullmoon   \Circle
\let\newmoon    \CIRCLE
\def\leftmoon   {\mbox{\wasyfamily\char36}}
\def\rightmoon  {\mbox{\wasyfamily\char37}}
%\def\astrosun  {{\tensy\char12}}
\def\astrosun   {\mbox{$\odot$}}
\def\mercury    {\mbox{\wasyfamily\char39}}
\def\venus      {\leavevmode\raise0.2ex\hbox{\wasyfamily\char25}}
\def\earth      {\leavevmode\lower0.3ex\hbox{\wasyfamily\char38}}
\def\mars       {\leavevmode\lower0.2ex\hbox{\wasyfamily\char26}}
\def\jupiter    {\mbox{\wasyfamily\char88}}
\def\saturn     {\mbox{\wasyfamily\char89}}
\def\uranus     {\mbox{\wasyfamily\char90}}
\def\neptune    {\mbox{\wasyfamily\char91}}
```

```
\def\pluto      {\mbox{\wasyfamily\char92}}
%%%%%% the zodiac
\let\aries      \vernal
\def\taurus     {\mbox{\wasyfamily\char93}}
\def\gemini     {\mbox{\wasyfamily\char94}}
\def\cancer     {\mbox{\wasyfamily\char95}}
\let\leo        \ascnode
\def\virgo      {\mbox{\wasyfamily\char96}}
\def\libra      {\mbox{\wasyfamily\char97}}
\def\scorpio    {\mbox{\wasyfamily\char98}}
\def\sagittarius{\mbox{\wasyfamily\char99}}
\def\capricornus{\mbox{\wasyfamily\char100}}
\def\aquarius   {\mbox{\wasyfamily\char101}}
\def\pisces     {\mbox{\wasyfamily\char102}}
\def\conjunction{{\wasyfamily\char86}}
\def\opposition {{\wasyfamily\char87}}
%%%%%% APL characters
\def\APLstar    {\mbox{\wasyfamily\char69}}
\def\APLlog     {\mbox{\wasyfamily\char22}}
\def\APLbox     {\mbox{\wasyfamily\char126}}
\def\APLup      {\mbox{\wasyfamily\char0}}
\def\APLdown    {\mbox{\wasyfamily\char70}}
\def\APLinput   {\mbox{\wasyfamily\char125}}
\def\APLcomment {\mbox{\wasyfamily\char127}}
\def\APLinv     {{\hbox to 0pt{$\div$\hss}\APLbox}}
\def\APLuparrowbox{\mbox{\wasyfamily\char110}}
\def\APLdownarrowbox{\mbox{\wasyfamily\char111}}
\def\APLleftarrowbox{\mbox{\wasyfamily\char112}}
\def\APLrightarrowbox{\mbox{\wasyfamily\char113}}
\def\notbackslash{\overstrike{\backslash}{-}}
\def\notslash   {\overstrike{/}{-}}
\def\APLminus   {\leavevmode\raise0.7ex\hbox{$-$}}
\def\APLnot#1{\overstrike{\sim}{#1}}
\def\APLcirc#1{\overstrike{\circ}{#1}}
\def\APLvert#1{\overstrike{\vert}{#1}}
%%%%%% math characters
\def\Bowtie     {\mbox{\wasyfamily\char49}}
\def\leftturn   {\mbox{\wasyfamily\char34}}
\def\rightturn  {\mbox{\wasyfamily\char33}}
%%%%%% diagrams
\def\photon     {\mbox{\wasyfamily\char58\char58\char58\char58}}
\def\gluon      {\mbox{\wasyfamily\char81\char80\char80\char80%
    \char80\char80\char80\char82}}
%%%%%% special characters
\def\cent       {\mbox{\wasyfamily\char103}}
\def\permil     {\mbox{\wasyfamily\char104}}
\def\agemO      {{\wasyfamily\char48}}
\def\thorn      {{\wasyfamily\char105}}
\def\Thorn      {{\wasyfamily\char106}}
\DeclareTextCommand{\dh}{OT1}{{\wasyfamily\char107}}
%\DeclareTextSymbol{\dh}{T1}{240} %\dh is already declared
\DeclareTextCommand{\DH}{OT1}{\leavevmode{\rm\setbox0\hbox{D}%
    \hbox to\wd0{\kern 0.04em\char32\hss D}}}
\DeclareTextCommand{\Dh}{OT1}{\DH} % Will go away soon
```

```
\DeclareTextCommand{\Dh}{T1}{\DH}  % Will go away soon
\def\openo      {{\wasyfamily\char108}}
\def\inve       {{\wasyfamily\char85}}
```

Because the lasy symbols are made an error in the format we have to undefine them before we can set them anew with `\DeclareMathSymbol`. Made the math-groups more readable and changed `\lhd` and friends to be binary operators as in latexsym.

```
  \let\mho\undefined
  \let\sqsupset\undefined \let\Join\undefined
  \let\lhd\undefined      \let\Box\undefined
  \let\unlhd\undefined    \let\Diamond\undefined
  \let\rhd\undefined      \let\leadsto\undefined
  \let\unrhd\undefined    \let\sqsubset\undefined

  \let\iint\undefined     \let\iiint\undefined

  \DeclareMathSymbol\mho     {\mathord}{wasy}{"30}
  \DeclareMathSymbol\Join    {\mathrel}{wasy}{"31}
  \DeclareMathSymbol\Box     {\mathord}{wasy}{"32}
  \DeclareMathSymbol\Diamond {\mathord}{wasy}{"33}
  \DeclareMathSymbol\leadsto {\mathrel}{wasy}{"3B}
  \DeclareMathSymbol\sqsubset{\mathrel}{wasy}{"3C}
  \DeclareMathSymbol\sqsupset{\mathrel}{wasy}{"3D}
  \DeclareMathSymbol\lhd     {\mathbin}{wasy}{"01}
  \DeclareMathSymbol\unlhd   {\mathbin}{wasy}{"02}
  \DeclareMathSymbol\LHD     {\mathbin}{wasy}{"10}
  \DeclareMathSymbol\rhd     {\mathbin}{wasy}{"03}
  \DeclareMathSymbol\unrhd   {\mathbin}{wasy}{"04}
  \DeclareMathSymbol\RHD     {\mathbin}{wasy}{"11}
  \DeclareMathSymbol\apprle  {\mathrel}{wasy}{"3E}
  \DeclareMathSymbol\apprge  {\mathrel}{wasy}{"3F}
  \DeclareMathSymbol\wasypropto   {\mathrel}{wasy}{"1D}
  \DeclareMathSymbol\invneg  {\mathrel}{wasy}{"18}
  \DeclareMathSymbol\ocircle {\mathbin}{wasy}{"23}
  \DeclareMathSymbol\logof   {\mathrel}{wasy}{"16}
  \DeclareMathSymbol\varint  {\mathop}{wasy}{"72}
  \DeclareMathSymbol\iint    {\mathop}{wasy}{"73}
  \DeclareMathSymbol\iiint   {\mathop}{wasy}{"74}
  \DeclareMathSymbol\varoint {\mathop}{wasy}{"75}
  \DeclareMathSymbol\oiint   {\mathop}{wasy}{"76}
⟨/package⟩
```

3.1 Wasy symbols fonts

The rest of this file defines the the font shape declarations that have to go into the corresponding `.fd` file.

We introduce the `.fd` file in the log file. The explicit spaces are necessary in an `.fd` file and the `\string` guards against situations where `‘`, `<` or `>` is active.

```
⟨*fd⟩
\DeclareFontFamily{U}{wasy}{}
\DeclareFontShape{U}{wasy}{m}{n}{ <5> <6> <7> <8> <9> gen * wasy
      <10> <10.95> <12> <14.4> <17.28> <20.74> <24.88>wasy10  }{}
```

```
\DeclareFontShape{U}{wasy}{b}{n}{ <-10> sub * wasy/m/n
 <10> <10.95> <12> <14.4> <17.28> <20.74> <24.88>wasyb10 }{}
```
⟨/fd⟩

The next line goes into all files and in addition prevents DOCSTRIP from adding any further code from the main source file (such as a character table).

```
\endinput
```