The `wasy`[*]symbol fonts for use with LaTeX 2ε

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1 Introduction

This file defines the package `wasysym` which makes some additional characters available that come from the `wasy` fonts (Waldis symbol fonts). These fonts are not automatically included in the NFSS2/LaTeX 2ε since they take up important space and aren't necessary if one makes use of the packages `amsfonts` or `amssymb`.

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

The commands defined by the `wasysym` package are:

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

The following commands are available in text-mode and scale according to the textfont size:

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 ℧

Electrical and physical symbols:

\AC ∼ \HF ≈ \VHF ≋ \photon ∿∿∿ \gluon ᘓᘓᘓ

[*]`wasy`-font by Roland Waldi, Universität Karlsruhe, Germany, Copyright 1989, Version 2 Copyright 1992

Polygons and Stars:

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

Music notes:

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

Various circles:

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

Phonetic signs:

\thorn þ \Thorn Þ \dh ð \Dh Ð \openo ɔ \inve ə

Some symbols used in astonomy:

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

Astrological symbols and the zodiacal symbols:

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

And the APL-symbols, whoever needs them:

\APLstar ⋆ \APLlog ⍟ \APLbox ⎕ \APLup ∆ \APLdown ∇
\APLinput ⍞ \APLcomment ⍝ \APLinv ⌹ \APLuparrowbox ⍐
\APLdownarrowbox ⍗ \APLleftarrowbox ⍇ \APLrightarrowbox ⍈
\notbackslash ⍀ \notslash ⌿ \APLnot ∼ \APLcirc ∘ \APLvert | \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

We start by writing to the VDU and the transcript file.

```
⟨*package⟩
\NeedsTeXFormat{LaTeX2e}[1994/06/01]
\ProvidesPackage{wasysym}[\filedate\space\fileversion\space
                              Additional LaTeX2e package]
\typeout{Package: `wasysym'
  \fileversion\space\space <\filedate> (ak)}
\typeout{English Documentation
  \@spaces\space <\docdate> (ak)}
```

\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

```
\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 we have defined them as a new fontfamily. Since we only take single characters but don't want to write this is not an elegant approach. But it works and the symbols scale according to textsize, which is all we 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
```

Defining some special symbols:

```
\def\male{\hbox{\wasyfamily\char26}}
\def\female{\hbox{\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{\hbox{\kern0.5pt\wasyfamily\char58\kern0.5pt}}
\def\HF{\lower0.9pt\hbox to 0pt{\kern0.5pt\wasyfamily\char58\hss}%
        \raise0.9pt\hbox{\kern0.5pt\wasyfamily\char58\kern0.5pt}}
\def\VHF{\hbox{\wasyfamily\char64}}
\def\Box{\hbox{\wasyfamily\char50}}
\def\Square{\hbox{$\Box$}}
\def\CheckedBox{\hbox to 0pt{\wasyfamily\char50\hss}\hbox{\wasyfamily\char8}}
\def\XBox{\hbox{\wasyfamily\char52}}
\def\hexagon{\hbox{\wasyfamily\char55}}
\def\pentagon{\hbox{\wasyfamily\char68}}
\def\octagon{\hbox{\wasyfamily\char56}}
\def\varhexagon{\hbox{\wasyfamily\char57}}
\def\hexstar{\hbox{\wasyfamily\char65}}
\def\varhexstar{\hbox{\wasyfamily\char66}}
\def\davidsstar{\hbox{\wasyfamily\char67}}
\def\diameter{\hbox{\wasyfamily\char31}}
\def\invdiameter{\hbox{\wasyfamily\char21}}
\def\varangle{\hbox{\wasyfamily\char30}}
\def\wasylozenge{\hbox{\wasyfamily\char53}}
\def\kreuz{\hbox{\wasyfamily\char54}}
\def\smiley{\hbox{\wasyfamily\char44}}
\def\frownie{\hbox{\wasyfamily\char47}}
\def\blacksmiley{\hbox{\wasyfamily\char45}}
\def\sun{\hbox{\wasyfamily\char46}}
\def\checked{\hbox{\wasyfamily\char8}}
\def\bell{\hbox{\wasyfamily\char10}}
\def\eighthnote{\hbox{\wasyfamily\char11}}
\def\quarternote{\hbox{\wasyfamily\char12}}
\def\halfnote{\hbox{\wasyfamily\char13}}
\def\fullnote{\hbox{\wasyfamily\char14}}
\def\twonotes{\hbox{\wasyfamily\char15}}
\def\brokenvert{\hbox{\wasyfamily\char124}}
\def\ataribox{\hbox{\wasyfamily\char109}}
\def\wasytherefore{\hbox{\wasyfamily\char5}}
\def\Circle{\hbox{\wasyfamily\char35}}
\def\CIRCLE{\hbox{\wasyfamily\char32}}
\def\Leftcircle{\hbox{\wasyfamily\char73}}
\def\LEFTCIRCLE{\hbox{\wasyfamily\char71}}
\def\Rightcircle{\hbox{\wasyfamily\char74}}
\def\RIGHTCIRCLE{\hbox{\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{\hbox{\wasyfamily\char23}}
\def\ascnode{\hbox{\wasyfamily\char19}}
\def\descnode{\hbox{\wasyfamily\char20}}
\def\fullmoon{\hbox{\wasyfamily\char35}}
\def\newmoon{\hbox{\wasyfamily\char32}}
\def\leftmoon{\hbox{\wasyfamily\char36}}
```

```
\def\rightmoon{\hbox{\wasyfamily\char37}}
%\def\astrosun{\hbox{\tensy\char12}}
\def\astrosun{\hbox{$\odot$}}
\def\mercury{\hbox{\wasyfamily\char39}}
\def\venus{\raise0.2ex\hbox{\wasyfamily\char25}}
\def\earth{\lower0.3ex\hbox{\wasyfamily\char38}}
\def\mars{\lower0.2ex\hbox{\wasyfamily\char26}}
\def\jupiter{\hbox{\wasyfamily\char88}}
\def\saturn{\hbox{\wasyfamily\char89}}
\def\uranus{\hbox{\wasyfamily\char90}}
\def\neptune{\hbox{\wasyfamily\char91}}
\def\pluto{\hbox{\wasyfamily\char92}}
%%%%%% the zodiac
\def\aries{\hbox{\wasyfamily\char23}}
\def\taurus{\hbox{\wasyfamily\char93}}
\def\gemini{\hbox{\wasyfamily\char94}}
\def\cancer{\hbox{\wasyfamily\char95}}
\def\leo{\hbox{\wasyfamily\char19}}
\def\virgo{\hbox{\wasyfamily\char96}}
\def\libra{\hbox{\wasyfamily\char97}}
\def\scorpio{\hbox{\wasyfamily\char98}}
\def\sagittarius{\hbox{\wasyfamily\char99}}
\def\capricornus{\hbox{\wasyfamily\char100}}
\def\aquarius{\hbox{\wasyfamily\char101}}
\def\pisces{\hbox{\wasyfamily\char102}}
\def\conjunction{\hbox{\wasyfamily\char86}}
\def\opposition{\hbox{\wasyfamily\char87}}
%%%%%% APL characters
\def\APLstar{{\hbox{\wasyfamily\char69}}}
\def\APLlog{{\hbox{\wasyfamily\char22}}}
\def\APLbox{{\hbox{\wasyfamily\char126}}}
\def\APLup{{\hbox{\wasyfamily\char0}}}
\def\APLdown{{\hbox{\wasyfamily\char70}}}
\def\APLinput{{\hbox{\wasyfamily\char125}}}
\def\APLcomment{{\hbox{\wasyfamily\char127}}}
\def\APLinv{{\hbox to 0pt{$\div$\hss}\APLbox}}
\def\APLuparrowbox{{\hbox{\wasyfamily\char110}}}
\def\APLdownarrowbox{{\hbox{\wasyfamily\char111}}}
\def\APLleftarrowbox{{\hbox{\wasyfamily\char112}}}
\def\APLrightarrowbox{{\hbox{\wasyfamily\char113}}}
\def\notbackslash{\overstrike{\backslash}{-}}
\def\notslash{\overstrike{/}{-}}
\def\APLnot#1{\overstrike{\sim}{#1}}
\def\APLcirc#1{\overstrike{\circ}{#1}}
\def\APLvert#1{\overstrike{\vert}{#1}}
\def\APLminus{\raise0.7ex\hbox{$-$}}
%%%%%% math characters
\def\Bowtie{\hbox{\wasyfamily\char49}}
\def\leftturn{\hbox{\wasyfamily\char34}}
\def\rightturn{\hbox{\wasyfamily\char33}}
```

```
%%%%%% diagrams
\def\photon{\hbox{\wasyfamily\char58\char58\char58\char58}}
\def\gluon{\hbox{\wasyfamily\char81\char80\char80\char80%
    \char80\char80\char80\char82}}
%%%%%% special characters
\def\cent{\hbox{\wasyfamily\char103}}
\def\permil{\hbox{\wasyfamily\char104}}
\def\agem0{{\wasyfamily\char48}}
\def\thorn{{\wasyfamily\char105}}
\def\Thorn{{\wasyfamily\char106}}
\def\dh{{\wasyfamily\char107}}
\def\Dh{\leavevmode{\rm\setbox0\hbox{D}%
    \hbox to\wd0{\kern 0.04em\char32\hss D}}}
\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`.

```
  \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

  \DeclareMathSymbol\mho     {0}{wasy}{"30}
  \DeclareMathSymbol\Join    {3}{wasy}{"31}
  \DeclareMathSymbol\Box     {0}{wasy}{"32}
  \DeclareMathSymbol\Diamond {0}{wasy}{"33}
  \DeclareMathSymbol\leadsto {3}{wasy}{"3B}
  \DeclareMathSymbol\sqsubset{3}{wasy}{"3C}
  \DeclareMathSymbol\sqsupset{3}{wasy}{"3D}
  \DeclareMathSymbol\lhd     {3}{wasy}{"01}
  \DeclareMathSymbol\unlhd   {3}{wasy}{"02}
  \DeclareMathSymbol\LHD     {3}{wasy}{"10}
  \DeclareMathSymbol\rhd     {3}{wasy}{"03}
  \DeclareMathSymbol\unrhd   {3}{wasy}{"04}
  \DeclareMathSymbol\RHD     {3}{wasy}{"11}
  \DeclareMathSymbol\apprle  {3}{wasy}{"3E}
  \DeclareMathSymbol\apprge  {3}{wasy}{"3F}
  \DeclareMathSymbol\wasypropto   {3}{wasy}{"1D}
  \DeclareMathSymbol\invneg  {3}{wasy}{"18}
  \DeclareMathSymbol\ocircle {3}{wasy}{"23}
  \DeclareMathSymbol\logof   {3}{wasy}{"16}
  \DeclareMathSymbol\varint  {1}{wasy}{"72}
  \DeclareMathSymbol\iint    {1}{wasy}{"73}
  \DeclareMathSymbol\iiint   {1}{wasy}{"74}
  \DeclareMathSymbol\varoint {1}{wasy}{"75}
  \DeclareMathSymbol\oiint   {1}{wasy}{"76}
⟨/package⟩
```

3.1 LaTeX 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⟩
\wlog{Fontdef\space file\space produced\space from:\space
 \string‘wasysym.dtx’\space \fileversion\space
 \string<\filedate\string>\space (ak)}
\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⟩
```

4 A driver for this document

The next bit of code contains the documentation driver file for TeX, i.e., the file that will produce the documentation you are currently reading. It will be extracted from this file by the DOCSTRIP program.

```
⟨*driver⟩
\documentclass{ltxdoc}
\usepackage{wasysym}
%\OnlyDescription  % comment out for implementation details
\begin{document}  \DocInput{wasysym.dtx}   \end{document}
⟨/driver⟩
```

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
```