The Symbol Font wasy

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The font wasy contains all lasy characters, and a lot more symbols. New characters were modified from the mf files of the standard TeX fonts, and many were designed from scratch.

The first version was released in 1990. Metafont sources for 5–10pt and a bold and slanted 10pt font are available in the present version. An extension to PLAIN-TEX for using the fonts is included in the file WASYFONT.tex.

This can probably be used in IATEX documents, but a new IATEX format with the bindings already included and with wasy replacing the lasy font would be the superiour solution. This version includes all lasy characters at the proper codes (causing some incompatibilities with version 1 of wasy) to make such a procedure easy.

The file WASYFONT.2 contains substitutes for some macros of WASYFONT.tex to be used at installations, that do not support the wasy fonts.

Some characters make sense in slanted or boldface form (only available at 10pt, although scaled fonts can be defined by the user). These are included in slanted text, if instead of \sl the command \wsl is used, and in bold text, if instead of \bf the command \wbf is used. Analogue commands for IATEX are easy to define, too.

Symbols (not letters) are defined in WASYFONT.tex as boxes, which simplifies their use in math-mode, but the \/ for italic correction for the slanted characters will not work after a symbol. If this feature is required, the \hbox{...} should be removed from the definition.

A list of characters with their bindings in WASYFONT.tex follows. Some macros are actually compositions of several characters useful in the given context. Macros using symbols which are already available from standard T_{EX} fonts are also included; these are marked with * .

general symbols

\male	o ^r	\female	φ
\currency	Ø	\cent	¢
\euro	€	\kreuz	+
\smiley	\odot	\blacksmiley	•
\frownie	(2)	\sun	✡
\checked	/	\hrokenvert	!

```
\diameter
                    \invdiameter ⋈
             Ø
\phone
             Ø,
                    \recorder
                                   Q
                                   ‰
\clock
             (
                    \permil
\bell

                    \ataribox
                                   4
\pointer
                    \lightning
             ♦
             \Omega
                                   §
\agem0
                    \Paragraph
                    \applecmd
                                   \mathbb{H}
\lozenge
             П
\therefore ∴
music notes
\eighthnote ♪
                    \quarternote J
\halfnote
              \fullnote
\twonotes
              J
electrical engineering
\AC
             \HF \approx
\VHF
       \approx
APL
                                                   \nabla
\APLup
                     Δ
                            \APLdown
\APLbox
                            \APLinv
                                                   ·
                     \APLleftarrowbox
                     \leftarrow
                            \APLrightarrowbox
\APLuparrowbox
                     \uparrow
                            \APLdownarrowbox
                                                   \Box
                            \APLminus*
\APLinput
                     П
                                                   *
\APLlog
                     \otimes
                            \APLstar
                                                   \nabla
\APLvert*
                            \APLvert{\APLdown}
\APLnot*
                            \APLnot{\APLdown}
                                                   \nabla
\APLnot{\land}
                     A
                            \APLnot{\lor}
                                                   \swarrow
\APLcirc*
                            \APLcirc{\bot}
                                                   ф
                     0
\notbackslash*
                     +
                            \notslash^*
                                                   +
\APLcomment
                     ρ
astronomy
\ascnode
                   \descnode
                                  S
             \Omega
\vernal
                   \astrosun*
                                  \odot
\newmoon
                   \fullmoon
                                  \bigcirc
                   \rightmoon
\leftmoon
             \mathbb{C}
                                  \mathbb{D}
             Ϋ́
                                  φ
\mercury
                   \venus
\mars
                   \jupiter
                                  4
             ď
```

\uranus

\saturn

ħ

\neptune \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	pluto	Р				
astrological symbols and zodiacal symbols						
\conjunction of \aries \gamma\taurus \text{\gemini} \pi \text{\cancer} \leo \Q\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	•	n ← hoio M, starius ¼ cornus る enius ≈				
geometrical shapes						
\hexstar	\varhexs \APLstan \CIRCLE \LEFTCIF \RIGHTCI \RIG	RCLE IRCLE ircle crow row				
yarangle ∢ \diameter Ø \leftturn Ó \photon	sics \$\invn \there \right \gluon	efore :. turn 💍				
<pre>math operators \$a\ocircle b\$ \$a\oplus* b\$ \$a\le* b\$ \$a\apprle b\$ \$a\lhd b\$ \$a\unlbd b\$</pre>	$a \bigcirc b$ $a \oplus b$ $a \le b$ $a \le b$ $a \le b$ $a \le b$	<pre>\$a\logof b\$ \$a\otimes* b\$ \$a\ge* b\$ \$a\apprge b\$ \$a\rhd b\$ \$a\unrhd b\$</pre>	$a \otimes b$ $a \otimes b$ $a \geq b$ $a \geq b$ $a \geq b$ $a > b$			

\$a\unlhd b\$

 $a \trianglerighteq b$

\$a\unrhd b\$

 $a \leq b$

```
$a\LHD b$
                                 $a\RHD b$
                      a \triangleleft b
                                                        a \triangleright b
                      a \sqsubset b
                                                        a \supset b
$a\sqsubset b$
                                 $a\sqsupset b$
a\
                                 a \simeq b
$a\propto* b$
                      a \propto b
                                 $a\varpropto b$
                                                        a \propto b
$a\leadsto b$
                      a \rightsquigarrow b
```

integrals (text style)

$$\begin{array}{lll} & & & \\$$

integrals (display style)

With the control sequence \newpropto you can change the proportional sign to the thin wasy symbol (\propto), which is more distinct from alpha (α) than the default symbol (\propto).

With the control sequence \newint you can change the T_EX integrals from \int , \oint to the vertical ones \int , \oint , in display:

$$\int_{a}^{b} \to \int_{a}^{b}, \qquad \oint_{C} \to \oint_{C}$$

There are also a few letters in roman style added, although these and some symbols as \mathcal{O} , ‰ should be in a separate font, to be created in different styles like italic, sans serif etc. – the wasychr.mf source is prepared for that, and now has bold and slanted versions.

Examples

"We provide the M, you provide the ©"

The planets (\odot \rightarrow outer space): $\mbegin{align*}[t]{l} \mbox{$\not$$} \mbox{$$

special characters on Atari STs: \diamondsuit , \maltese , \checkmark , \odot , \blacktriangle , \eth , \lnot , \lnot , \lnot , \lnot , \cdots

tube dimensions: \emptyset 5 mm, d = 0.5 mm, l = 50 mm

prices 1\$ 2¢ or 0.95€ or 0.80£. prices 1\$ 2¢ or 0.95€ or 0.80£.

legal text: §§ 9–22 StVG, § 12 StVO oder §§ 9–22 StVG, § 12 StVO

Icelandic text: Ég veit það ekki eða Ég veit það ekki.

traditional typography: ligature f3=ß, fure to possess fatisfaction

simple phonetic notation: corner ['kɔ:nə], this [ðis], thrash $[\theta ref]$, vision ['vɪʒn]

display math:

APL Program:

$$U \leftarrow -1 + G \leftarrow 2 \times \iota N \leftarrow \square$$
 \tag{\text{generate vectors of odd and even numbers}}

APL keyboard layout:

$$\uparrow \qquad \downarrow$$

check the appropriate box like this \boxtimes or that \square :

- ☐ I need the wasy fonts
- ☐ I don't need the wasy fonts

Font Table

wasy:

```
00 = \triangle
          01 = ⊲
                     02 = <
                                03 = ⊳
                                          04 = ⊳
                                                     05 = ∴
                                                               06 = Q
                                                                         07 = 🕿
                                          OC = →
                                OB = ♪
08 = <
          09 = $
                     0A = 4
                                                    OD = |
                                                               OE = 0
                                                                         OF = \Im
                                          14 = ??
                                                                         17 = ↑
10 = ◀
          11 = ▶
                     12 = 4
                                13 = \Omega
                                                     15 = ⋈
                                                               16 = ⊕
          19 = ♀
                     1A = 0
                                          1C = ①
                                                     1D = \infty
                                                               1E = ∢
                                                                         1F = \emptyset
18 = ⊢
                                1B = X
                                          24 = (
20 =
          21 = ()
                     22 = (5)
                                23 = \bigcirc
                                                     25 = D
                                                               26 = <sup>†</sup>
                                                                         27 = \( \bar{4} \)
28 = <
          29 = >
                     2A = 
                                2B = ~
                                          2C = ©
                                                     2D = ●
                                                               2E = ♡
                                                                         2F = ③
30 = 0
          31 = ⋈
                     32 = □
                                33 = ♦
                                          34 = ⋈
                                                     35 = 🖽
                                                               36 = ₩
                                                                         37 = ○
38 = ()
          39 = 🔾
                     3A = \sim
                                3B = \sim
                                          3C = □
                                                     3D = □
                                                               3E = \leq
                                                                         3F = \geq
40 = ⊗
          41 = \times
                     42 = *
                                43 = ☆
                                          44 = 🔿
                                                    45 = *
                                                               46 = ♡
                                                                         47 = (
48 = D
          49 = (
                     4A = 0
                                4B = ▲
                                          4C = ▼
                                                    4D = \S
                                                               4E = €
                                                                         4F = 3
                     52 = \
                                                                         57 = 8
50 = γ
          51 = /
                                53 = ₩
                                          54 = f
                                                    55 = ə
                                                               56 = \sigma
58 = 4
                     5A = ô
                                5B = ₹
                                          5C = ₽
                                                    5D = 8
                                                               5E = II
                                                                         5F = 😏
          59 = h
60 = M
                     62 = M.
                                63 = ✓
                                          64 = る
          61 = __
                                                    65 = ≈
                                                               66 = )(
                                                                         67 = c
                     6A = Þ
68 = \%
          69 = b
                                6B = \delta
                                          c = 20
                                                     6D = ③
                                                               6E = ↑
                                                                         6F = □
                                73 = ∬
                     72 = <sub>∫</sub>
70 = ⊟
                                                     75 =
          71 = ⊟
                                          74 = 1
                                                               76 =
                                7B =
78 =
          79 =
                     7A =
                                          7C = |
                                                    7D = 🖺
                                                               7E = 
                                                                         7F = \rho
               \oint
```

wasy 5pt:

```
00 = △ 01 = ⊲
                02 = 03 = 04 = 05 = 06 = 007 = 60
08 = √ 09 = ⋄
                 OA = . OB = . OC = . OD = . OE = . OF = .
10 = → 11 = →
                12 = \frac{1}{2} 13 = \frac{1}{2} 14 = \frac{1}{2} 15 = \frac{1}{2} 16 = \frac{1}{2} 17 = \frac{1}{2}
                 1A = 0 1B = 0 1C = 0 1D = 0 1E = 0 1F = 0
18 = - 19 = <sub>♀</sub>
20 = ● 21 = ♂
                22 = 0 23 = 0 24 = 0 25 = 0 26 = 0 27 = 0
                28 = (
        29 = ,
30 = ♂ 31 = ⋈
                32 = 33 = 34 = 34 = 35 = 36 = 37 = 37 = 31
                3A = 3B = 3C = 3D = 3E = 3F = 2
38 = <sub>0</sub> 39 = <sub>0</sub>
40 = ≈ 41 = ∗
                42 = * 43 = * 44 = 0 45 = * 46 = 7 47 = 4
48 = 1 49 = 1
                4A = 0 4B = 4 4C = 4 4D = 8 4E = 6 4F = 3
                 52 = 53 = 54 = 6
50 = 8 51 = 8
                                         55 = 56 = 57 = 8
58 = 4 \quad 59 = 6
                5A = 8 5B = 8 5C = 8 5D = 8 5E = 16 5F = 69
                 62 = m, 63 = 2 64 = 8 65 = 8 66 = 2 67 = 6
60 = mp 61 = <u></u>
                 6A = D \quad 6B = 0 \quad 6C = 0 \quad 6D = 0 \quad 6E = 0 \quad 6F = 0
68 = \% 69 = 6
                72 = 73 = 74 = 75 = 76 = 77 =
70 = ⊟ 71 = ⊟
78 = \iint 79 = \iint 7A = \iint 7B = \iint 7C = \iint 7D = \iint 7E = \iint 7F = \iint 7F
```

wasyb:

00 = △ 01 = △ 02 = △ 03 = ▷ 04 = ▷ 05 = ∴ 06 = ∅ 07 = ☎ 08 = ✓ 09 = ⋄ 0A = ♠ 0B = ♪ 0C = Ј 0D = Ј 0E = ₀ 0F = Љ 10 = △ 11 = ▶ 12 = ⅓ 13 = ℘ 14 = ♡ 15 = ⋈ 16 = ⊛ 17 = ♈ 18 = □ 19 = ℘ 1A = ♂ 1B = ⋈ 1C = ⊕ 1D = ∞ 1E = ⅓ 1F = ℘ 20 = ♠ 21 = ♂ 22 = ♂ 23 = ○ 24 = 《 25 = 》 26 = ♂ 27 = ஜ 28 = ⟨ 29 = ▷ 2A = ○ 2B = ▷ 2C = ⊕ 2D = ♣ 2E = ☼ 2F = ⊕ 30 = ♂ 31 = ⋈ 32 = □ 33 = ⋄ 34 = ⋈ 35 = ⋈ 36 = ♣ 37 = ○ 38 = ○ 39 = ○ 3A = ○ 3B = ○ 3C = □ 3D = □ 3E = ≤ 3F = ≥ 40 = ⋈ 41 = ⅓ 42 = ⅙ 43 = ♠ 44 = ○ 45 = ⅙ 46 = ♡ 47 = ♠ 48 = ▶ 49 = ○ 4A = ○ 4B = ♠ 4C = ▼ 4D = § 4E = € 4F = 3 50 = ⅙ 51 = △ 52 = ▷ 53 = ⅙ 54 = f 55 = ○ 56 = ♂ 57 = ⋄ 58 = ⅙ 59 = ħ 5A = ⅙ 5B = ∜ 5C = ₽ 5D = ੴ 5E = ∬ 5F = ⊕ 68 = ‰ 69 = þ 6A = Þ 6B = ð 6C = ○ 6D = ฬ 6E = ဤ 6F = Ѿ 77 = ⋚ 77 =
$$\bigcirc 77 = \bigcirc 77 = \bigcirc$$

wasysl:

```
Changes since version 1.0
version 1.1:
\varangle has been centered at the math axis
version 2.0:
new: letters Þ,b,ð,ə,ɔ,\omega
new astrological and zodiacal symbols
new symbols permil, cent, ataribox
now the full set of lasy is included; for this purpose 9 characters (②, ③, ☼, ¼, ħ, ₺,
\forall, \exists) have changed code!
wasyb10 font for bold math added
version 2.1:
new spacing for a
version 2.2:
wasys110 font for slanted characters added
new German Paragraph §, currency €
new commands \wsl, \wbf
version 2.3:
new scaling for X (bugfix)
italic corrections improved (\/ for wasys110; works for symbols only without \hbox in
the definition!)
new apple cmd symbol \mathbb{X}
version 2.4:
```

new characters long-s f and round-z 3

improved \mathcal{O} (bugfix)

new macros for planets and some other astronomy symbols for use in math mode subscripts (i.e. proper size change).