

The Symbol Font `wasy`

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Version 2.0 – September 1992

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. Metafont sources for 5–10pt and a bold 10pt font are available.

An extension to PLAIN-`TEX` for using the fonts is included in the file `wasyfont.tex`. This can probably be used in `LATEX` documents, but a new `LATEX` format with the bindings already included and with `wasy` replacing the `lasy` font would be the superior 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.

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 `TEX` fonts are also included; these are marked with *.

general symbols

<code>\male</code>	♂	<code>\female</code>	♀
<code>\currency</code>	¤	<code>\cent</code>	¢
<code>\lozenge</code>	◊	<code>\kreuz</code>	✝
<code>\smiley</code>	☺	<code>\blacksmiley</code>	☹
<code>\frownie</code>	☹	<code>\sun</code>	☼
<code>\checked</code>	✓	<code>\brokenvert</code>	‡
<code>\diameter</code>	∅	<code>\invdiameter</code>	∅
<code>\phone</code>	☎	<code>\recorder</code>	📻
<code>\clock</code>	🕒	<code>\permil</code>	‰
<code>\bell</code>	🔔	<code>\ataribox</code>	📧
<code>\pointer</code>	☞	<code>\lightning</code>	⚡
<code>\agem0</code>	U		

diagrams

<code>\photon</code>	~~~~~	<code>\gluon</code>	~~~~~
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music notes

<code>\eighthnote</code>	♪	<code>\quarternote</code>	♩
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<code>\halfnote</code>	♩	<code>\fullnote</code>	♩
<code>\twonotes</code>	♩		

electrical engineering

<code>\AC</code>	\sim	<code>\HF</code>	\approx
<code>\VHF</code>	\approx		

APL

<code>\APLup</code>	Δ	<code>\APLdown</code>	∇
<code>\APLbox</code>	\square	<code>\APLinv</code>	\boxplus
<code>\APLleftarrowbox</code>	\boxleftarrow	<code>\APLrightarrowbox</code>	\boxrightarrow
<code>\APLuparrowbox</code>	\boxup	<code>\APLdownarrowbox</code>	\boxdown
<code>\APLinput</code>	\boxplus	<code>\APLminus*</code>	$-$
<code>\APLlog</code>	\otimes	<code>\APLstar</code>	$*$
<code>\APLvert*</code>	$ $	<code>\APLvert{\APLdown}</code>	∇
<code>\APLnot*</code>	\sim	<code>\APLnot{\APLdown}</code>	∇
<code>\APLnot{\land}</code>	\wedge	<code>\APLnot{\lor}</code>	\vee
<code>\APLcirc*</code>	\circ	<code>\APLcirc{\bot}</code>	\bot
<code>\notbackslash*</code>	\nmid	<code>\notslash*</code>	\nmid
<code>\APLcomment</code>	␣		

astronomy

<code>\ascnode</code>	Ω	<code>\descnode</code>	♂
<code>\vernal</code>	Υ	<code>\astrosun*</code>	\odot
<code>\newmoon</code>	\bullet	<code>\fullmoon</code>	\bigcirc
<code>\leftmoon</code>	☾	<code>\rightmoon</code>	☾
<code>\mercury</code>	♿	<code>\venus</code>	♀
<code>\mars</code>	♂	<code>\jupiter</code>	♃
<code>\saturn</code>	♄	<code>\uranus</code>	♅
<code>\neptune</code>	♆	<code>\pluto</code>	♇
<code>\earth</code>	♁		

astrological symbols and zodiacal symbols

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

geometrical shapes

<code>\hexstar</code>	✱	<code>\varhexstar</code>	✱
<code>\davidssstar</code>	☆	<code>\APLstar</code>	✱
<code>\Circle</code>	○	<code>\CIRCLE</code>	●
<code>\Leftcircle</code>	◐	<code>\LEFTCIRCLE</code>	◐
<code>\Rightcircle</code>	◑	<code>\RIGHTCIRCLE</code>	◑
<code>\LEFTcircle</code>	◐	<code>\RIGHTcircle</code>	◑
<code>\LEFTarrow</code>	◀	<code>\RIGHTarrow</code>	▶
<code>\UParrow</code>	▲	<code>\DOWNarrow</code>	▼
<code>\Box</code>	□	<code>\APLbox</code>	□
<code>\XBox</code>	⊠	<code>\Bowtie</code>	⊠
<code>\Diamond</code>	◇	<code>\octagon</code>	⬡
<code>\hexagon</code>	⬡	<code>\varhexagon</code>	⬡
<code>\pentagon</code>	⬠		

general math & physics

<code>\varangle</code>	∠	<code>\$_\mathrm{invneg}\$</code>	↯
<code>\leftturn</code>	↶	<code>\rightturn</code>	↷
<code>\diameter</code>	∅	<code>\therefore</code>	∴

math operators

<code>\$\circ b</code>	$a \circ b$	<code>\$\logof b</code>	$a \oplus b$
<code>\$\oplus^* b</code>	$a \oplus b$	<code>\$\otimes^* b</code>	$a \otimes b$
<code>\$\le^* b</code>	$a \leq b$	<code>\$\ge^* b</code>	$a \geq b$
<code>\$\apprle b</code>	$a \lesssim b$	<code>\$\apprge b</code>	$a \gtrsim b$
<code>\$\lhd b</code>	$a \triangleleft b$	<code>\$\rhd b</code>	$a \triangleright b$
<code>\$\unlhd b</code>	$a \trianglelefteq b$	<code>\$\unrhd b</code>	$a \trianglerighteq b$
<code>\$\LHD b</code>	$a \blacktriangleleft b$	<code>\$\RHD b</code>	$a \blacktriangleright b$
<code>\$\sqsubset b</code>	$a \sqsubset b$	<code>\$\sqsupset b</code>	$a \sqsupset b$
<code>\$\sqsubseteq^* b</code>	$a \sqsubseteq b$	<code>\$\sqsupseteq^* b</code>	$a \sqsupseteq b$
<code>\$\propto^* b</code>	$a \propto b$	<code>\$\varpropto b</code>	$a \propto b$
<code>\$\leadsto b</code>	$a \rightsquigarrow b$		

integrals (text style)

<code>\$\varint_a^b f(x)dx</code>	$\int_a^b f(x)dx$	<code>\$\iint_a^b f(x)dx</code>	$\iint_a^b f(x)dx$
<code>\$\iiint_a^b f(x)dx</code>	$\iiint_a^b f(x)dx$	<code>\$\varoint_a^b f(x)dx</code>	$\oint_a^b f(x)dx$
<code>\$\oiint_a^b f(x)dx</code>	$\oiint_a^b f(x)dx$		

integrals (display style)

$$\int \iint \iiint \oint \oiint$$

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

$$\int_a^b \rightarrow \int_a^b, \quad \oint_C \rightarrow \oint_C$$

There are also a few letters in roman style added (although these and some symbols as \mathfrak{U} , ‰ 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.

<code>\thorn</code>	þ	<code>\Thorn</code>	Þ
<code>\dh</code>	ð	<code>\Dh*</code>	Ð
<code>\inve</code>	ə	<code>\openo</code>	ɔ

Examples

“We provide the ♪♪, you provide the ☺”

The planets ($\odot \rightarrow$ outer space): ☿ ♀ ♂ ♂ asteroids ♃ ♅ ♂ ♄ ♁.

special characters on IBM PC's: ☺, ☹, ♥, ♦, ♣, ♠, ●, ○, ♂, ♀, ♪, ♫, ☼, ►, ◄, ↕, !!, ¶,
§, —, ⤴, ⤵, ⤶, ⤷, ➡, ⬅, ▲, ▼, ⚏, ☐, ☑, ...

special characters on Atari ST's: , , \checkmark , \odot , , , \eth , \sqcap , \sqcup , \oint , ...

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

$$\frac{1}{2} \left(\frac{1}{2} + \frac{1}{2} \right) = \frac{1}{2}$$

$$\sphericalangle(\vec{a}, \vec{b}) = 30^\circ$$

$$\prod_{x<5} a_x \oplus b_x \simeq \int_{x>5} a \circ b dx \quad (\text{nonsense.1})$$

$$\text{Gauss' law:} \quad \iiint_V \nabla \mathbf{F}(\mathbf{x}) \, d^3x = \oint_{S(V)} \mathbf{F}(\mathbf{x}) \, d\mathbf{a}$$

$$\text{Stokes' law:} \quad \iint_A [\nabla \times \mathbf{F}(\mathbf{x})] \, d\mathbf{a} = \oint_{C(A)} \mathbf{F}(\mathbf{x}) \, d\mathbf{l}$$

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

1 2 3 4 5 6 7 8 9 0 + × ◇
Q W E R T Y U I O P ← →

A S D F G H J K L [] #
 † Z X C V B N M , . /
 .. - < ≤ = ≥ > ≠ ∨ ∧ - ÷ \$
 ? ω ε ρ ~ ↑ ↓ ι ○ ★ { }
 α ∫ ∫ ∫ ∫ ∫ ∫ ∫ ∫ ∫ ∫ ∫ ∫
 † † † † † † † † † † † †
 I ∇ ∇ ∇ ∇ ∇ ∇ ∇ ∇ ∇ ∇ ∇ ∇
 Q W E R T Y U I O P []
 A S D F G H J K L † † †
 Δ Z X C V B N M ∅ ∅ ∅
 ⊗
 ↑ ↓

simple phonetic notation: corner [ˈkɔːnə], this [ðis], thrash [θræʃ]

check the appropriate box like this ☒ or that ☑:

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

Font Table

wasy:

00 = Δ	01 = ∠	02 = ∠	03 = ∠	04 = ∠	05 = ∴	06 = ∅	07 = ☹
08 = ✓	09 = ♠	0A = ♠	0B = ♠	0C = ♠	0D = ♠	0E = ∅	0F = ♠
10 = ◀	11 = ▶	12 = ⚡	13 = Ω	14 = ∪	15 = ∩	16 = ⊕	17 = ∩
18 = ∟	19 = ♀	1A = ♂	1B = ∩	1C = ⊕	1D = ∞	1E = ∠	1F = ∅
20 = ●	21 = ☺	22 = ☺	23 = ○	24 = ☺	25 = ☺	26 = ☺	27 = ♀
28 = <	29 = >	2A = ^	2B = v	2C = ☺	2D = ☺	2E = ☺	2F = ☺
30 = ∪	31 = ∩	32 = □	33 = ◇	34 = ☒	35 = ∩	36 = ♣	37 = ∅
38 = ○	39 = ∅	3A = ~	3B = ~	3C = □	3D = □	3E = ≤	3F = ≥
40 = ≈	41 = *	42 = *	43 = ☆	44 = ∅	45 = *	46 = ∇	47 = ♀
48 = ♀	49 = ∅	4A = ∅	4B = ▲	4C = ▼	4D = §	4E = €	4F = 3
50 = ∅	51 = ∅	52 = ∅	53 = ☼	54 = f	55 = ∅	56 = ∅	57 = ♂
58 = ♀	59 = ♀	5A = ♂	5B = ♀	5C = ∅	5D = ∅	5E = ∅	5F = ☹
60 = ∞	61 = ∞	62 = ∞	63 = ∞	64 = ∞	65 = ∞	66 = ∞	67 = ∅
68 = %	69 = ∅	6A = ∅	6B = ∅	6C = ∅	6D = ∅	6E = ∅	6F = ∅
70 = ∅	71 = ∅	72 = ∅	73 = ∅	74 = ∅	75 = ∅	76 = ∅	77 = ∅
78 = ∅	79 = ∅	7A = ∅	7B = ∅	7C = ∅	7D = ∅	7E = ∅	7F = ∅

wasyb:

00 = \triangle	01 = \triangleleft	02 = \trianglelefteq	03 = \triangleright	04 = \trianglerighteq	05 = \therefore	06 = \oslash	07 = \heartsuit
08 = \checkmark	09 = \spadesuit	0A = \clubsuit	0B = \mathbb{J}	0C = \mathbb{J}	0D = \mathbb{J}	0E = \circ	0F = \mathbb{J}
10 = \blacktriangleleft	11 = \blacktriangleright	12 = \mathbb{Z}	13 = \mathbb{Q}	14 = \mathbb{U}	15 = \mathbb{Q}	16 = \otimes	17 = Υ
18 = \neg	19 = \mathbb{Q}	1A = \mathbb{Q}	1B = \mathbb{Q}	1C = \mathbb{Q}	1D = ∞	1E = \mathbb{Q}	1F = \mathbb{Q}
20 = \bullet	21 = \mathbb{Q}	22 = \mathbb{Q}	23 = \mathbb{Q}	24 = \mathbb{Q}	25 = \mathbb{Q}	26 = \mathbb{Q}	27 = \mathbb{Q}
28 = \lt	29 = \gt	2A = \wedge	2B = \vee	2C = \odot	2D = \odot	2E = \odot	2F = \odot
30 = \mathbb{U}	31 = \mathbb{Q}	32 = \square	33 = \diamond	34 = \boxtimes	35 = \mathbb{Q}	36 = \mathbb{Q}	37 = \mathbb{Q}
38 = \mathbb{Q}	39 = \mathbb{Q}	3A = \sim	3B = \sim	3C = \square	3D = \square	3E = \lesseqgtr	3F = \gtrless
40 = \approx	41 = \mathbb{Q}	42 = \mathbb{Q}	43 = \mathbb{Q}	44 = \mathbb{Q}	45 = \mathbb{Q}	46 = ∇	47 = \mathbb{Q}
48 = \mathbb{Q}	49 = \mathbb{Q}	4A = \mathbb{Q}	4B = \mathbb{Q}	4C = \mathbb{Q}	4D = \mathbb{Q}	4E = \mathbb{Q}	4F = \mathbb{Q}
50 = \mathbb{Q}	51 = \mathbb{Q}	52 = \mathbb{Q}	53 = \mathbb{Q}	54 = \mathbb{Q}	55 = \mathbb{Q}	56 = \mathbb{Q}	57 = \mathbb{Q}
58 = \mathbb{Q}	59 = \mathbb{Q}	5A = \mathbb{Q}	5B = \mathbb{Q}	5C = \mathbb{Q}	5D = \mathbb{Q}	5E = \mathbb{Q}	5F = \mathbb{Q}
60 = \mathbb{Q}	61 = \mathbb{Q}	62 = \mathbb{Q}	63 = \mathbb{Q}	64 = \mathbb{Q}	65 = \mathbb{Q}	66 = \mathbb{Q}	67 = \mathbb{Q}
68 = \mathbb{Q}	69 = \mathbb{Q}	6A = \mathbb{Q}	6B = \mathbb{Q}	6C = \mathbb{Q}	6D = \mathbb{Q}	6E = \mathbb{Q}	6F = \mathbb{Q}
70 = \mathbb{Q}	71 = \mathbb{Q}	72 = \mathbb{Q}	73 = \mathbb{Q}	74 = \mathbb{Q}	75 = \mathbb{Q}	76 = \mathbb{Q}	77 = \mathbb{Q}
78 = \mathbb{Q}	79 = \mathbb{Q}	7A = \mathbb{Q}	7B = \mathbb{Q}	7C = \mathbb{Q}	7D = \mathbb{Q}	7E = \mathbb{Q}	7F = \mathbb{Q}

Changes since version 1.0

version 1.1:

`\varangle` has been centered at the math axis

version 2.0:

new: letters $\mathbb{P}, \mathbb{p}, \mathbb{Q}, \mathbb{Q}, \mathbb{Q}, \mathbb{Q}$

new astrological and zodiacal symbols

new symbols permil, cent, ataribox

now the full set of `lasy` is included; for this purpose 9 characters (\odot , \odot , \odot , \odot , \mathbb{Q} , \mathbb{Q} , \mathbb{Q} , \mathbb{Q} , \mathbb{Q}) have **changed code!**

`wasyb10` font for bold math added