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 LATEX documents, but a new LATEX 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 LATEX 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 TEX fonts are also included; these are marked with *.

general symbols

`\male`	♂	`\female`	♀
`\currency`	¤	`\cent`	¢
`\euro`	€	`\kreuz`	✠
`\smiley`	☺	`\blacksmiley`	☻
`\frownie`	☹	`\sun`	☼
`\checked`	✓	`\brokenvert`	¦

\diameter	⌀	\invdiameter	⍉
\phone	☎	\recorder	⌕
\clock	🕒	\permil	‰
\bell	🔔	\ataribox	⯁
\pointer	➪	\lightning	ϟ
\agemO	℧	\Paragraph	§
\lozenge	⌑	\applecmd	⌘
\therefore	∴		

music notes

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

electrical engineering

\AC	∼	\HF	≈
\VHF	≋		

APL

\APLup	△	\APLdown	▽
\APLbox	□	\APLinv	⌹
\APLleftarrowbox	⍇	\APLrightarrowbox	⍈
\APLuparrowbox	⍐	\APLdownarrowbox	⍗
\APLinput	⍞	\APLminus*	¯
\APLlog	⍟	\APLstar	⋆
\APLvert*	|	\APLvert{\APLdown}	⍒
\APLnot*	∼	\APLnot{\APLdown}	⍖
\APLnot{\land}	⍲	\APLnot{\lor}	⍱
\APLcirc*	∘	\APLcirc{\bot}	⍜
\notbackslash*	⍀	\notslash*	⌿
\APLcomment	⍝		

astronomy

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

\neptune	♆	\pluto	♇
\earth	♁		

astrological symbols and zodiacal symbols

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

geometrical shapes

\hexstar	✳	\varhexstar	✳
\davidsstar	✡	\APLstar	⋆
\Circle	○	\CIRCLE	●
\Leftcircle	◖	\LEFTCIRCLE	◖
\Rightcircle	◗	\RIGHTCIRCLE	◗
\LEFTcircle	◐	\RIGHTcircle	◑
\LEFTarrow	◀	\RIGHTarrow	▶
\UParrow	▲	\DOWNarrow	▼
\Box	□	\APLbox	⍞
\XBox	⊠	\Bowtie	⋈
\Diamond	◇	\octagon	⯃
\hexagon	⬡	\varhexagon	⬡
\pentagon	⬠		

general math & physics

\varangle	∡	$\invneg$	⌐
\diameter	⌀	\therefore	∴
\leftturn	↺	\rightturn	↻
\photon	∼∼∼	\gluon	∼∼∼

math operators

$a\ocircle b$	$a \bigcirc b$	$a\logof b$	$a \circledast b$
$a\oplus^* b$	$a \oplus b$	$a\otimes^* b$	$a \otimes b$
$a\le^* b$	$a \leq b$	$a\ge^* b$	$a \geq b$
$a\apprle b$	$a \lesssim b$	$a\apprge b$	$a \gtrsim b$
$a\lhd b$	$a \lhd b$	$a\rhd b$	$a \rhd b$
$a\unlhd b$	$a \trianglelefteq b$	$a\unrhd b$	$a \trianglerighteq b$

`$a\LHD b$`	$a \blacktriangleleft b$	`$a\RHD b$`	$a \blacktriangleright b$
`$a\sqsubset b$`	$a \sqsubset b$	`$a\sqsupset b$`	$a \sqsupset b$
`$a\sqsubseteq^* b$`	$a \sqsubseteq b$	`$a\sqsupseteq^* b$`	$a \sqsupseteq b$
`$a\propto^* b$`	$a \propto b$	`$a\varpropto b$`	$a \propto b$
`$a\leadsto b$`	$a \leadsto b$		

integrals (text style)

`$\varint_a^b f(x)dx$`	$\int_a^b f(x)dx$	`$\iint_a^b f(x)dx$`	$\iint_a^b f(x)dx$
`$\iiint_a^b f(x)dx$`	$\iiint_a^b f(x)dx$	`$\varoint_a^b f(x)dx$`	$\oint_a^b f(x)dx$
`$\oiint_a^b f(x)dx$`	$\oiint_a^b f(x)dx$		

integrals (display style)

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

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 TEX integrals from $\int, \oint$ to the vertical ones $\int, \oint$, in display:

$$\int_a^b \to \int\limits_a^b, \qquad \oint_C \to \oint\limits_C$$

There are also a few letters in roman style added, although these and some symbols as ʊ, ‰ 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.

`\thorn`	þ **þ** *þ*	`\Thorn`	Þ **Þ** *Þ*
`\dh`	ð **ð** *ð*	`\Dh`*	Ð **Ð** *Ð*
`\inve`	ə **ə** *ə*	`\openo`	ɔ **ɔ** *ɔ*
`\s`	ſ **ſ** *ſ*	`\z`	ʒ **ʒ** *ʒ*

Examples

"We provide the ♪♫, you provide the ☺"

The planets (☉ → outer space): ☿ ♀ ♁ ♂ asteroids ⚳ ♄ ⚴ ⚵ (♇). $r_☿ < r_♁$

special characters on PCs: ☺, ☻, ♡, ♢, ♣, ♠, •, ○, ♂, ♀, ♪, ♫, ☼, ►, ◄, ↕, ‼, ¶, §, ▁, ↨, ↑, ↓, →, ←, ▲, ▼, ¦, ⌐, ¬, ...

special characters on Atari STs: ⌽, ⍰, ✓, ⏲, ♠, ♪, ə, ⌐, ¬, ∮, ...

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

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 ſʒ=ß, fure to poſſeſs ſatisfaction

simple phonetic notation: corner ['kɔ:nə], this [ðis], thrash [θræʃ], vision ['vɪʒn]

display math:

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

$$\prod_{x \lesssim 5} a_x \circledast b_x \simeq \int_{x \gtrsim 5} a \bigcirc b \,\mathrm{d}x \qquad \text{(nonsense.1)}$$

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

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

APL Program:
$U \leftarrow {}^{-}1 + G \leftarrow 2 \times \iota N \leftarrow \square$ ⍝ generate vectors of odd and even numbers

APL keyboard layout:

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	,	.	/		

¨	¯	<	≤	=	≥	>	≠	∨	∧	−	÷	$
	?	⍵	∈	⍴	∼	↑	↓	⍳	○	⋆	{	}
	⍺	⌈	⌊	_	∇	∆	∘	'	⎕	(	)	∼
⊣	⊂	⊃	∩	∪	⊥	⊤	|	;	:	\		

⍎	⍒	⍋	⍋	⍎	⍒	⍒	⍋	⍒	⍋	!	⍎	⍎
	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	⍝	⍎	⍎		

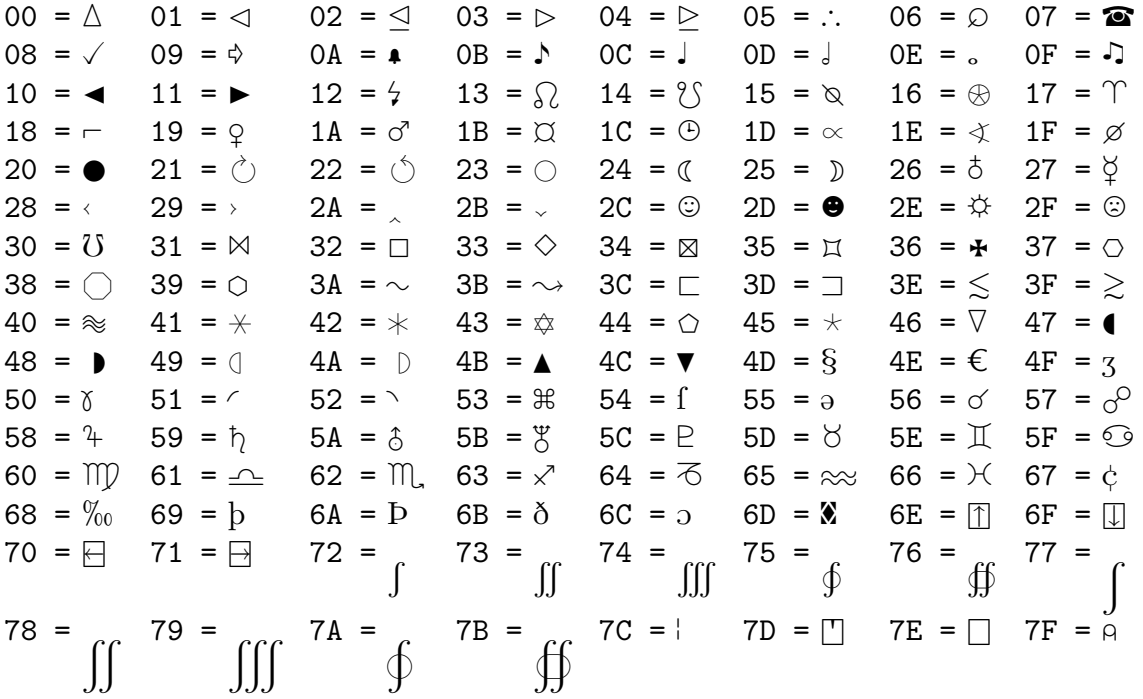
	⊗	
⍎		⍎

check the appropriate box like this ☒ or that ☑:

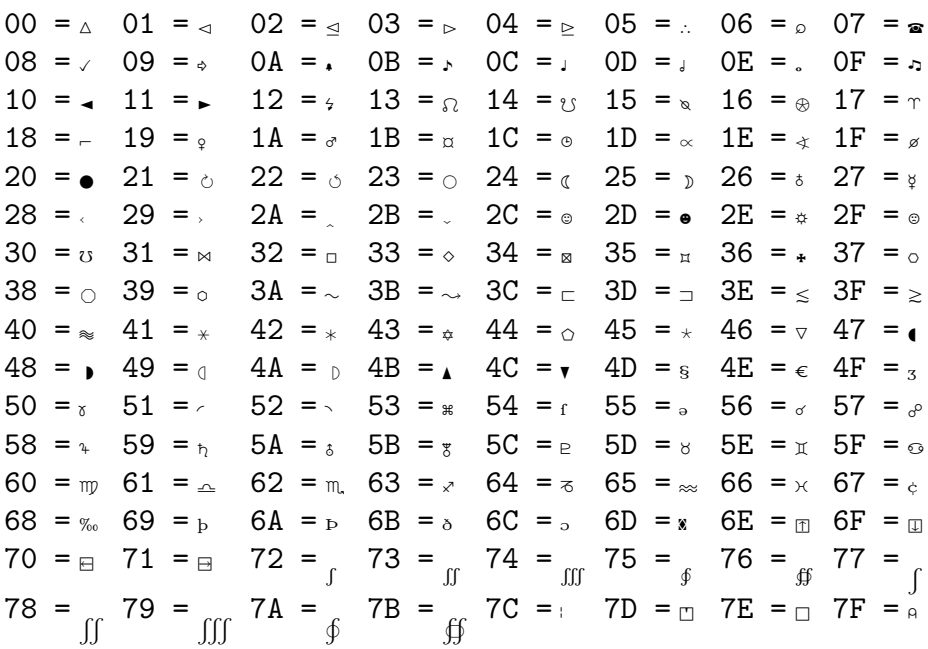
☐ I need the `wasy` fonts
☐ I don't need the `wasy` fonts

Font Table

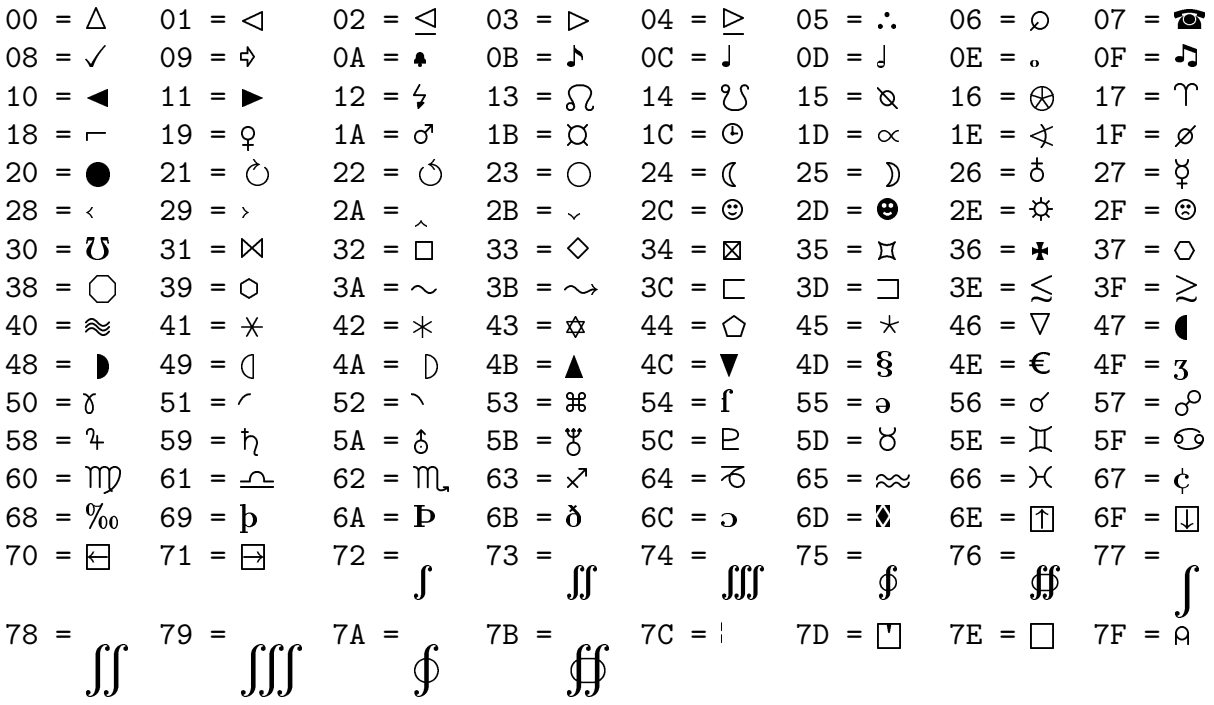
wasy:



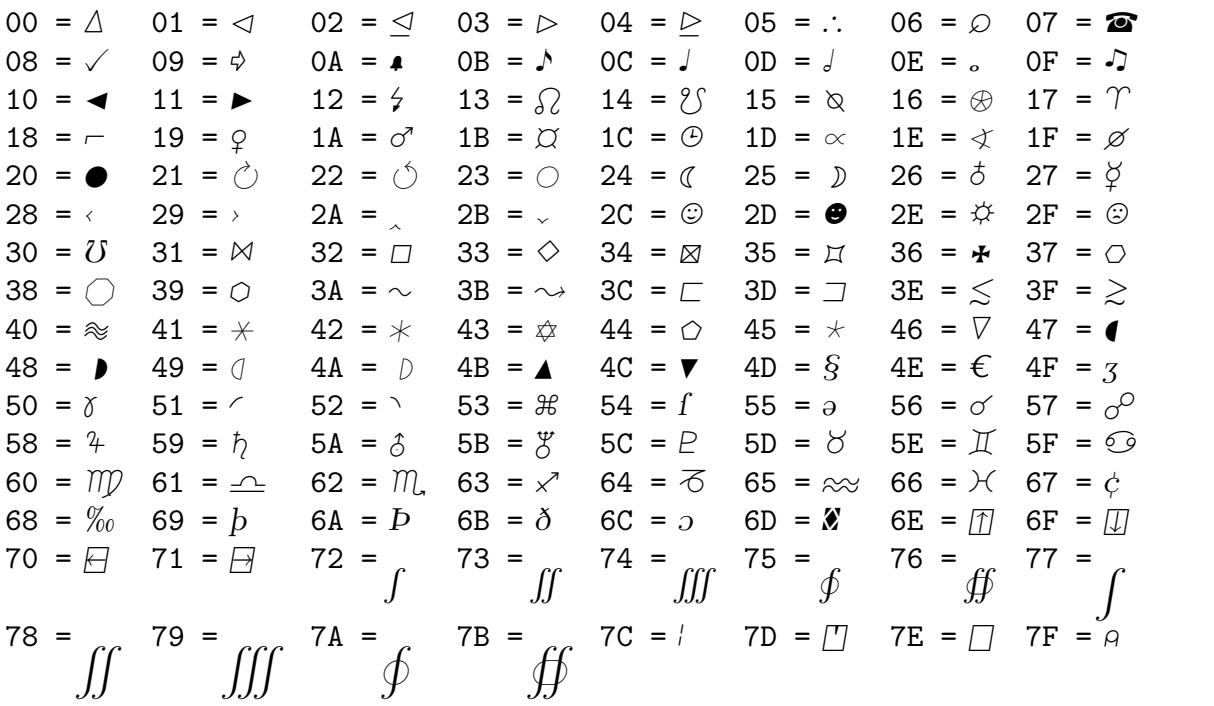
wasy 5pt:



wasyb:



wasysl:



Changes since version 1.0

version 1.1:

`\varangle` has been centered at the math axis

version 2.0:

new: letters Þ,þ,ð,ə,ɔ,ʊ

new astrological and zodiacal symbols

new symbols permil, cent, ataribox

now the full set of `lasy` is included; for this purpose 9 characters (☺, ☻, ☹, ☼, ♄, ♃, ♂, ♅, ♇) have **changed code**!

`wasyb10` font for bold math added

version 2.1:

new spacing for ɔ

version 2.2:

`wasysl10` font for slanted characters added

new German Paragraph §, currency €

new commands `\wsl, \wbf`

version 2.3:

new scaling for 🔀 (bugfix)

corrections for ⇑ and ⇓ at small fonts (bugfix)

italic corrections improved (`\/` for `wasysl10`; works for symbols only without `\hbox` in the definition!)

new apple cmd symbol ⌘

version 2.4:

new characters long-s ſ and round-z ʒ

improved ☍ (bugfix)

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

version 2.5

improved 𝛣 (bugfix)