Kp-fonts: OpenType version

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This bundle provides OpenType versions of Type1 Kp-fonts designed by Christophe Caignaert. See `Kpfonts-Doc-English.pdf` for the full documentation of the original Type1 fonts.

It is usable only with LuaTeX or XeTeX engines; it consists of sixteen Text OpenType fonts, a Roman family **KpRoman** in eight shapes and weights —*Regular*, *Italic*, *Bold*, *BoldItalic*, *Light*, *LightItalic*, *Semibold*, *SemiboldItalic*—, a Sans-Serif family **KpSans** and a TypeWriter family **KpMono**, each of them in four shapes and weights—*Regular*, *Italic*, *Bold* and *BoldItalic*— and five Math OpenType fonts **KpMath-Regular**, **KpMath-Bold**, **KpMath-Light**, **KpMath-Semibold** and **KpMath-Sans**.

KpRoman and **KpSans** families have small caps available in two sizes (SmallCaps and PetitesCaps), upper and lowercase digits (0123456789), ancient ligatures ct, st and Q a long-tailed capital Q. Superior and inferior digits and letters have been added to the OpenType **KpRoman** and **KpSans** fonts for footnotes' calls and abbreviations 1^{st}, 2^{nd}…

Latin and Greek letters are available in Upright and Italic shapes, in Bold and Regular weights, for all Math fonts: a β C Δ, *a β C Δ*, **a β C Δ**, ***a β C Δ***.

Blackboard Bold capitals are available in two shapes, Serif and Sans: `\mathbb{ABC}` prints either 𝔸𝔹ℂ (option `[Style=bbsans]`) or 𝔸𝔹ℂ (default). Commands `\mathcal{ABC}` and `\mathscr{ABC}` print either $\mathscr{ABC}$ (default) or $\mathcal{ABC}$ with option `[Style=mathcal]`, .

File `unimath-kpfonts.pdf` shows the full list of Unicode Math symbols provided by Kp-fonts, compared with other common Math fonts. More symbols, specific to Kp-fonts, are listed in section 3.2.

A style file `kpfont-otf.sty` is provided to load Kp-fonts easily. It is derived from `kpfont.sty` but options differ.

Please beware that the current version (0.34) is *experimental*.

All fonts are covered by OFL licence, style file and documentation are under LPPL-1.3 licence.

1 Loading `kpfonts-otf.sty`

For users of the original `kpfonts.sty` package, the easiest way to try the OpenType version is to load `kpfonts-otf.sty`:

`\usepackage[` *options* `]{kpfonts-otf}`

this loads `unicode-math` (and `fontspec`) and defines **KpRoman** (**Regular** or **Light** depending on options), **KpSans** and **KpMono** as Text fonts, **KpMath** (**Regular** or **Light** depending on options) as Math fonts.

`kpfonts-otf.sty` also defines all symbols available in `latexsym` and `amssymb` under the same names [1] and a bunch of Kp-fonts specifics symbols.

1.1 Global options for both Text and Maths

light: switches to *light* fonts, metrics are unchanged; *light* fonts might not look perfect on screen but they print fine.

Please compare *regular* (left) and *light* fonts (right):

Normal or light? Just a matter of taste. $E = mc^2$	Normal or light? Just a matter of taste. $E = mc^2$
Normal or light? Just a matter of taste	*Normal or light? Just a matter of taste*
Normal or light? Just a matter of taste	**Normal or light? Just a matter of taste**
Normal or light? Just a matter of taste	***Normal or light? Just a matter of taste***

nomath: load neither `unicode-math` nor **KpMath** fonts; useful for documents without Maths, or to choose other Math fonts.

notext: do not change any Text font, use the defaults.

nosf: do not change Sans-Serif Text fonts, use the defaults.

nott: do not change Typewriter Text fonts, use the defaults.

onlyrm: equivalent to the last two combined.

1.2 Options for Text fonts *only*

lighttext: switches to *light* Text fonts.

oldstylenums: provides lowercase digits as a default.

To get uppercase digits locally: `{\addfontfeature{Numbers=Lining} 123}`.

Examples, upright, italic, bold and bolditalic:

— 0123456789 !
— *0123456789 !*
— **0123456789 !**
— ***0123456789 !***

1. Unicode names often differ from AMS names.

oldstyle: provides lowercase digits as a default, long-tailed Q (Quebec) and (for Roman and Sans-Serif fonts only) old style ligatures « ct » et « st ».
Examples:
— Queſt for an attractive font!
— *Queſt for an attractive font!*
— **Queſt for an attractive font!**
— Quest for an attractive font!
— ***Queſt for an attractive font!***
— **Quest for an attractive font!**

veryoldstyle: same as option `oldstyle` but the round 's' is replaced by the long one 'ſ', unless it ends a word (then it remains 's')[2] and ancient ligatures fi, fl, ft are activated. Coding `s=` prints a round 's' anytime; in most cases this coding is not necessary with LuaTeX[3], f.i. `\textit{some of Highlands' mysterious castles…}` will print *ſome of Highlands' myſterious caſtles…* which is correct; with XeTeX an `=` sign must be added at the end of `mysterious=` to get a round 's' there.

largesmallcaps: prints larger Small Caps than the default ones (Petites Caps).

altfligs : prints alternative shapes for ligatures fi, fl, ffi, ffl instead of fi, fl, ffi, ffl.

germandbls : `\SS` prints SS instead of ß (capital *Eszett*), ditto for small/petite caps.

1.3 Options for Math fonts *only*

lightmath: uses *light* Math fonts.

bbsans: command `\mathbb` prints Sans-Serif Blackboard Bold capitals with Serif fonts too: compare $\mathbb{C}, \mathbb{K}, \mathbb{N}, \mathbb{Q}, \mathbb{R}, \mathbb{Z}$, with $\mathbb{C}, \mathbb{K}, \mathbb{N}, \mathbb{Q}, \mathbb{R}, \mathbb{Z}$ (default).

mathcal: forces commands `\mathcal` and `\mathscr` to print $\mathcal{A}, \mathcal{B}, \mathcal{C}, \mathcal{D}$ instead of $\mathscr{A}, \mathscr{B}, \mathscr{C}, \mathscr{D}$ (default).

frenchstyle: Latin uppercase letters and all Greek letters are printed upright, only lowercase latin letters are printed in italics; this follows the French typographic usage.

oldstylenumsmath: prints lowercase digits in Maths (default is uppercase).

narrowiints: prints condensed repeated integrals :

$\iiint$ et $\iiint$ instead of $\iiint$ et $\iiint$ (default).

partialup: the `\partial` symbol is printed upright ∂ instead of ∂.

fancyRelm: commands `\Re` et `\Im` print $\mathfrak{Re}$ and $\mathfrak{Im}$ respectively instead of $\Re$ et $\Im$.

tight : horizontal spaces tightened in math mode (same settings as `fourier-otf`).

noDcommand: do not define `\D` to avoid incompatibilities with other packages.

2. The OpenType `calt` feature is used to catch 's' ending a word.
3. TeX's ~ char (nobreakspace) fails to be recognised as ending a word: `boys~band` prints boyſ band.

2 Another way to load Kp-fonts

Loading Kp-fonts through `kpfonts-otf.sty` offers only a limited choice of options; the standard commands `\setmainfont`, `\setsansfont`, `\setmonofont`, `\setmathfont` offer much more flexibility.

On the other hand, `kpfonts-otf.sty` defines a lot of useful commands to access AMS and specific Kp-fonts symbols. Loading `kpfonts-otf` with the `symbols` option enables to get all these commands defined without loading any font:

```
\usepackage[symbols]{kpfonts-otf}
```

Please note that `unicode-math`[4] (and `fontspec`) *are loaded* by this procedure, no need to do it again, unless specific options are required, then `unicode-math` has to be loaded *before* `kpfonts-otf`, f.i.:

```
\usepackage[math-style=ISO,bold-style=upright]{unicode-math}
\usepackage[symbols]{kpfonts-otf}
```

Then, it is up to the user to load Kp-fonts with whatever option he/she likes using commands

`\set...font{`*font*`}[`*options*`]`.

For documents requiring no Math fonts, loading `fontspec` and using the `\set...font` commands is enough.

2.1 Options for Text fonts

Here are the options available for Text Kp-fonts:

Numbers=Lowercase to get lowercase digits 1,2,3 instead of 1,2,3; the defaut is **Numbers=Lining**.

SmallCapsFeatures = {Letters=SmallCaps} the `\textsc{}` command will print larger SMALL CAPS than the default PETITES CAPS.
The default setting is **SmallCapsFeatures = {Letters=PetiteCaps}**.

Ligatures=TeX (default) `'` `!`` `?`` `--` `---` print respectively ’ ¡ ¿ – —.

Ligatures=Common (default) automatic ligatures ff ffi ffl fi fl.

StylisticSet=1 provides an alternative for glyphs ffi ffl fi fl (ff is unchanged).

Ligatures=Required : adds ft et tt ligatures.

Ligatures=Rare adds ct et st ligatures.

Style=Swash to get the long-tailed capital Q: Queen, also in small caps (both sizes): QUEEN and QUEEN.

4. A carefull reading of both manuals `unicode-math.pdf` and `fonspec.pdf` (available in all TeX distributions) is required in order to take full advantage of these packages.

Style=Historic replaces any instance of 's' by the long variant ſ. It is still possible to get a round 's' coding it as 's='. As the long variant is never used at words' ends the feature `calc` is also activated: it tries to catch end of words, see `veryoldstyle` p. 3 for more details.

Ligatures=Historic switches specific ligatures for the long ſ: ﬁ, ﬂ, ﬅ.

StylisticSet=2 : `\SS` prints SS instead of ß (capital *Eszett*), ditto for small/petite caps.

Options may be are chosen for each font, say:

```
\setmonofont{KpMono}[Numbers=Lowercase,Style=Historic]
```

but can also be shared by different typefaces:

```
\defaultfontfeatures+[KpRoman,KpSans,KpMono]{Numbers=Lowercase}
\defaultfontfeatures+[KpRoman,KpSans]{%
 Ligatures = Rare,
 Style = Swash,
 SmallCapsFeatures = {Letters=SmallCaps},
 }
\setmainfont{KpRoman}
\setsansfont{KpSans}
\setmonofont{KpMono}
```

Notes : 1. `\setmonofont{KpMono}`, `\setsansfont{KpSans}`, `\setmainfont{KpRoman}` rely on files `KpMono.fontspec`, `KpSans.fontspec` and `KpRoman.fontspec` installed by Kpfonts.

2. Note the `+` ending `\defaultfontfeatures+` : options are *added*, not overwriting any other (including those of `fontspec.cfg`).

3. Options can be gathered: `Ligatures={Rare,Historic}` (with braces) is equivalent to `Ligatures=Rare` and `Ligatures=Historic`.

4. These options can also be switched on and off *locally* using `\addfontfeatures` inside a group, f.i. to print lowercase digits 1234576890 with a font loaded with option `Numbers=Lining`:

```
{\addfontfeatures{Numbers=Lowercase}1234576890}
```

Actually, a shortcup is available in this case: `\oldstylenums{1234576890}`.

2.2 Options for Math fonts

The following options can be passed either to `unicode-math`[5] or to `\setmathfont{}`:

math-style = `ISO`, `TeX` (défaut), `french`, `upright`;

bold-style = `ISO`, `TeX` (défaut), `upright`;

partial = `upright` (default italic);

5. See the manual `unicode-math.pdf`.

nabla = `italic` (default upright);

Seven 'Style Variants' are available with Kp-fonts, here are the first three:

Style=mathcal (`+ss01`) commands `\mathcal{}` and `\mathscr{}` print $\mathcal{ABC}$ instead of $\mathscr{ABC}$ (default);

Style=bbsans (`+ss02`) `\mathbb{}` prints Sans-Serif Blackboard bold capitals $\mathbb{ABC}$ for Serif Math fonts `KpMath-Regular` and `KpMath-light` instead of $\mathbb{ABC}$;

Style=narrowiints (`+ss03`) provides condensed repeated integrals: $\iiint$ instead of $\iiint$ (default).

The next four tables present the other Style Variants available:

Table 1 – Style=leqslant (`+ss04`)

Command	Default	Variant
`\leq`	$\leq$	$\leqslant$
`\geq`	$\geq$	$\geqslant$
`\nleq`	$\not\leq$	$\not\leqslant$
`\ngeq`	$\not\geq$	$\not\geqslant$
`\leqq`	$\leqq$	$\leqslant$
`\geqq`	$\geqq$	$\geqslant$
`\eqless`	$\eqslantless$	$\leqslant$
`\eqgtr`	$\eqslantgtr$	$\geqslant$
`\lesseqgtr`	$\lesseqgtr$	$\lesseqgtr$
`\gtreqless`	$\gtreqless$	$\gtreqless$
`\lesseqqgtr`	$\lesseqqgtr$	$\lesseqqgtr$
`\gtreqqless`	$\gtreqqless$	$\gtreqqless$

Table 2 – Style=smaller (`+ss05`)

Command	Default	Variant
`\mid`	$\mid$	$\mid$
`\nmid`	$\nmid$	$\nmid$
`\parallel`	$\parallel$	$\parallel$
`\nparallel`	$\nparallel$	$\nparallel$
`\parallelslant`	$\parallelslant$	$\parallelslant$
`\nparallelslant`	$\nparallelslant$	$\nparallelslant$

Table 3 – Style=subsetneq (`+ss06`)

Command	Default	Variant
`\subsetneq`	$\subsetneq$	$\subsetneq$
`\supsetneq`	$\supsetneq$	$\supsetneq$
`\subsetneqq`	$\subsetneqq$	$\subsetneqq$
`\supsetneqq`	$\supsetneqq$	$\supsetneqq$

Table 4 – Style=parallelslant (`+ss07`)

Command	Default	Variant
`\parallel`	$\parallel$	$\parallelslant$
`\nparallel`	$\nparallel$	$\nparallelslant$
`\shortparallel`	$\shortparallel$	$\shortparallelslant$
`\nshortparallel`	$\nshortparallel$	$\nshortparallelslant$

Example: switching styles 4 (leqslant) and 6 (subsetneq) can be achieved coding either
`\setmathfont{KpMath-Regular.otf}[StylisticSet={4,6}]` or
`\setmathfont{KpMath-Regular.otf}[Style={leqslant,subsetneq}]`
but this second syntax is available only if `kpfonts-otf.sty` has been loaded (eventually with the `symbols` option).

Table 5 on the following page shows the available 'Glyphs Variants':

Example: with `\setmathfont{KpMath-Regular.otf}[CharacterVariant={3,6}]`

Table 5 – Glyphs Variants

	Default	Variant	Command
cv00	$\Re$ $\Im$	$\mathfrak{Re}$ $\mathfrak{Im}$	\Re \Im
cv01	$\hbar$	$\hbar$	\hslash or \hbar
cv02	$\varnothing$	$\emptyset$	\emptyset
cv03	ϵ	ε	\epsilon
cv04	κ	$\varkappa$	\kappa
cv05	π	ϖ	\pi
cv06	ϕ	φ	\phi
cv07	ρ	ϱ	\rho
cv08	σ	ς	\sigma
cv09	θ	ϑ	\theta
cv10	Θ	$\varTheta$	\Theta

commands \epsilon and \phi print ε and φ instead of ϵ et ϕ. The same is true of course for all shapes and and weights (upright, bold, bolditalic, sans-derif, etc.): f.i. with math-syle=french, \epsilon and \phi print ε and φ.

Note about \hbar: unicode-math defines \hbar as \hslash (U+210F) while amsmath provides two different glyphs (italic h with horizontal or diagonal stroke).
kpfonts-otf now follows unicode-math; the italic h with horizontal stroke can be printed using \hslash or \hbar together with character variant cv01 or with \mithbar (replacement for AMS' command \hbar).

3 Kp-fonts specific commands

3.1 Integrals

Kp-fonts offers variants for integral symbols suitable for indefinite integrals, they are coded as \varint, \variint, \variiint, \variiiint and \varidotsint. Compare $\int f(t)\,dt$ and $\int f(t)\,dt$ and also

$$\int f(t)\,dt \qquad \text{and} \qquad \int f(t)\,dt$$

\D{...} prints an upright 'd' and improves kernings around the differential element: \displaystyle\varint f(t)\D{t} donne $\displaystyle\int f(t)\,\mathrm{d}t$.

3.2 Specific Math symbols

The next tables present symbols unvailable as Unicode characters, they are coded in Kp-fonts' private zone.

\mmapsto	⤇	\longmmapsto	⟼
\mmapsfrom	⟻	\longmmapsfrom	⟻
\Mmapsto	⤇	\Longmmapsto	⟾
\Mmapsfrom	⟽	\Longmmapsfrom	⟽
\leftrightdasharrow	⇿	\leadsto	⇝

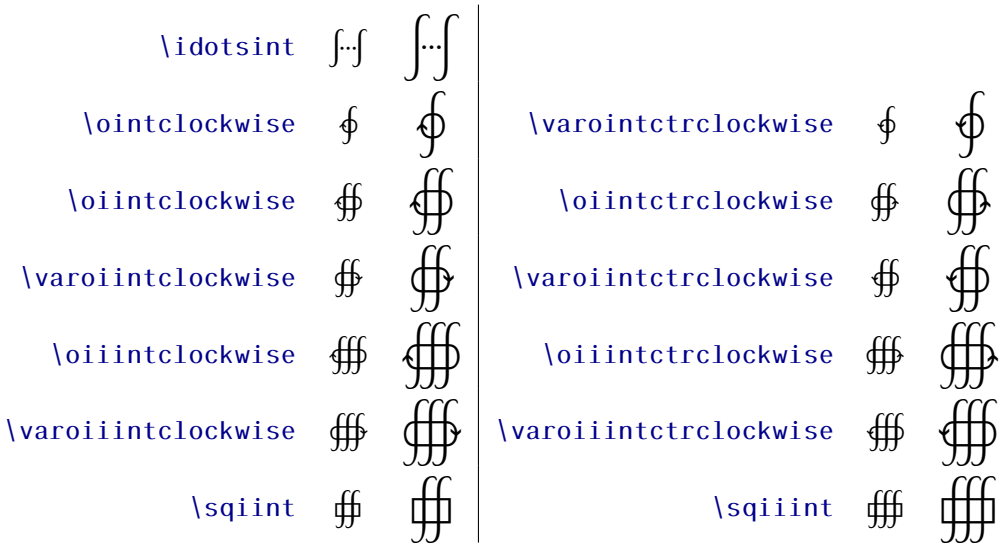
\boxright	⊏→	\boxleft	←⊐
\circleright	○→	\circleleft	←○
\Diamondright	◇→	\Diamondleft	←◇
\boxdotright	⊡→	\boxdotleft	←⊡
\circledotright	⊙→	\circledotleft	←⊙
\Diamonddotright	◈→	\Diamonddotleft	←◈

\boxRight	⊏⇒	\boxLeft	⇐⊐
\boxdotRight	⊡⇒	\boxdotLeft	⇐⊡
\DiamondRight	◇⇒	\DiamondLeft	⇐◇
\DiamonddotRight	◈⇒	\DiamonddotLeft	⇐◈

\multimapdot	⊸	\multimapdotinv	⟜
\multimapdotboth	⧟		
\multimapbothvert	⧟	\multimapdotbothvert	⧟
\multimapdotbothAvert	⧟	\multimapdotbothBvert	⧟

\capplus	⩀	\sqcupplus	⊎	\sqcapplus	⊓
\parallelslant	//	\colonsim	:∼	\colonapprox	:≈
\parallelbackslant	\\	\Colonsim	::∼	\Colonapprox	::≈
\eqqColon	=::	\Colondash	::–	\dashColon	–::

\strictif	⫬	\strictfi	⫰	\strictiff	⥼
\circledvee	⍛	\circledwedge	⍟	\circledbar	⍤
\openJoin	⟕	\opentimes	⟕	\VvDash	⫢
\lambdaslash	ƛ	\lambdabar	ƛ	\Wr	≀



The full list of Unicode symbols available with Kp-fonts is shown in file unimath-kpfonts.pdf.

3.3 Wide accents

— `\widehat` and `\widetilde`

$$\hat{x}\ \widehat{xx}\ \widehat{xxx}\ \widehat{xxxx}\ \widehat{xxxxx}\ \widehat{xxxxxx}\ \tilde{x}\ \widetilde{xx}\ \widetilde{xxx}\ \widetilde{xxxx}\ \widetilde{xxxxx}\ \widetilde{xxxxxx}$$

— `\overline` and `\underline`

$$\overline{x}\quad\overline{xy}\quad\overline{xyz}\quad\overline{A\cup B}\quad\overline{A\cup(B\cap C)\cup D}\quad\underline{m+n+p}$$

— `\wideoverbar`, `\widecheck` et `\widebreve`

$$\overline{x}\quad\overline{xy}\quad\overline{xyz}\quad\check{x}\quad\widecheck{xxxx}\quad\widecheck{xxxxxx}\quad\breve{x}\quad\widebreve{xxxx}\quad\widebreve{xxxxxx}$$

— `\overparen` and `\underparen`

$$\overparen{x}\quad\overparen{xy}\quad\overparen{xyz}\quad\overset{\circ}{\overparen{A\cup B}}\quad\overset{\circ}{\overparen{A\cup(B\cap C)\cup D}}\quad\overset{2}{\overparen{x+y}}\quad\overset{26}{\overparen{a+b+\ldots+z}}$$

$$\underparen{x}\quad\underparen{xz}\quad\underparen{xyz}\quad\underset{2}{\underparen{x+z}}\quad\underset{26}{\underparen{a+b+\ldots+z}}$$

— `\overbrace` and `\underbrace`

$$\overbrace{a}\quad\overbrace{ab}\quad\overbrace{abc}\quad\overbrace{abcd}\quad\overbrace{abcde}\quad\overbrace{a+b+c}^{3}\quad\overbrace{a+b+\ldots+z}^{26}$$

$$\underbrace{a}\quad\underbrace{ab}\quad\underbrace{abc}\quad\underbrace{abcd}\quad\underbrace{abcde}\quad\underbrace{a+b+c}_{3}\quad\underbrace{a+b+\ldots+z}_{26}$$

— `\overrightarrow` and `\overleftarrow`

$$\vec{v}\quad\overrightarrow{M}\quad\overrightarrow{vv}\quad\overrightarrow{AB}\quad\overrightarrow{ABC}\quad\overrightarrow{ABCD}\quad\overrightarrow{ABCDEFGH}.$$

$$\overleftarrow{v}\quad\overleftarrow{M}\quad\overleftarrow{vv}\quad\overleftarrow{AB}\quad\overleftarrow{ABC}\quad\overleftarrow{ABCD}\quad\overleftarrow{ABCDEFGH}$$

— Enfin `\widearc` and `\widearcarrow` (ou `\overrightarc`)

$$\overset{\frown}{AMB}\quad\overrightarrow{\overset{\frown}{AMB}}$$

3.4 Math Versions

Different versions of the **KpMath** fonts may be defined in the document's preamble:
`\setmathfont{KpMath-Regular.otf}[version=base,` *options* `]`
`\setmathfont{KpMath-Bold.otf}[version=bold,` *options* `]`
`\setmathfont{KpMath-Semibold.otf}[version=semibold,` *options* `]`
`\setmathfont{KpMath-Sans.otf}[version=sans,` *options* `]`
`\setmathfont{KpMath-Light.otf}[version=light,` *options* `]`
then, it is easy to switch from one version to another one with `\mathversion{`*name*`}`.

Example [6] :

```
\setmathfont{KpMath-Regular.otf}[Style=leqslant, CharacterVariant=3]
\setmathfont{KpMath-Bold.otf}[version=bold,
                  Style=leqslant, CharacterVariant=3]
\setmathfont{KpMath-Sans.otf}[version=sans,
                  Style=leqslant, CharacterVariant=3]
```

Here is the same equation in three versions, normal, bold and Sans-Serif:

$$\mathbb{E}_i(N_i) = \sum_{n\geq 1} P_i(N_i \geq n) = \frac{\varepsilon_i}{1-\varepsilon_i} < +\infty$$

```
\mathversion{bold}
```

$$\mathbb{E}_i(N_i) = \sum_{n\geqslant 1} P_i(N_i \geqslant n) = \frac{\varepsilon_i}{1-\varepsilon_i} < +\infty$$

```
\mathversion{sans}
```

$$\mathbb{E}_i(N_i) = \sum_{n\geqslant 1} P_i(N_i \geqslant n) = \frac{\varepsilon_i}{1-\varepsilon_i} < +\infty$$

6. Option `CharacterVariant=3` changes ϵ into ε.