

# 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 six maths OpenType fonts **KpMath-Regular**, **KpMath-Bold**, **KpMath-Light**, **KpMath-Semibold**, **KpMath-Sans** and **KpMath-SansBold**.

**KpRoman** and **KpSans** families have small caps available in two sizes (SmallCaps and PetiteCaps), 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<sup>st</sup>, 2<sup>nd</sup>...

The support of text fonts covers Latin and Latin Extended A (U+0020 to U+017F) but neither IPA nor Greek nor Cyrillic alphabets.

For all maths fonts, Latin and Greek letters are available in Upright and Italic shapes, in Bold and Regular weights:  $\alpha$   $\beta$   $\Gamma$   $\Delta$ ,  $\alpha$   $\beta$   $\Gamma$   $\Delta$ ,  $\alpha$   $\beta$   $\Gamma$   $\Delta$ ,  $\alpha$   $\beta$   $\Gamma$   $\Delta$ .

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

File `unimath-kpfonts.pdf` shows the full list of Unicode maths symbols provided by Kp-fonts, compared with other common maths 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 of the *experimental* status of the current version (0.70).

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, fontspec and usually realscripts<sup>1</sup>, and defines **KpRoman** (Regular or Light depending on options), **KpSans** and **KpMono** as Text fonts, **KpMath** (Regular or Light depending on options) as maths fonts.

kpfonts-otf.sty also defines all symbols available in latexsym and amssymb under the same names<sup>2</sup> 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. $E = mc^2$
--	--

<i>Normal or light? Just a matter of taste</i>	<i>Normal or light? Just a matter of taste</i>
--	--

<b>Normal or light? Just a matter of taste</b>	<b>Normal or light? Just a matter of taste</b>
--	--

<i><b>Normal or light? Just a matter of taste</b></i>	<i><b>Normal or light? Just a matter of taste</b></i>
---	---

**sans:** switches to *sans-serif* fonts for text and maths.

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

**fulloldstyle:** equivalent to options oldstyle and oldstylemath.

**fulloldstylenums:** equivalent to options oldstylenums and oldstylenumsmath.

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<sup>1</sup>See option fakedscripts below.

<sup>2</sup>Unicode names often differ from AMS names.

## 1.2 Options for text fonts *only*

**lighttext:** switches to *light* Text fonts.

Two more weights are provided by `kpfonts-otf.sty`: with the *lighttext* (or *light*) option, *Semibold* and *Extrabold* vs *Light* and *Semibold* without it. These weights are available through `\ltseries`, `\sbseries` and `\ebseries` commands to be used in a group or alternatively through one argument commands `\textlt{}`, `\textsb{}` and `\texteb{}`.

`{\sbseries\itshape Foo}` or `\textsb{\textit{Foo}}` print *Foo*.

**sfstext:** switches to *sans-serif* text fonts.

**fakedscripts :** prevents `realscripts` to be loaded, super- and sub-scripts will be produced by scaling (this is the way `pdflatex` works) which gives access to all characters available in the font but produces too tall and too thin glyphs. On the other hand `realscripts` gives access to the super/sub-scripts available in the font (a reduced set made of digits, lowercase latin letters, parentheses, etc. for the Kpfonts) which are better looking. I would recommend to keep `realscripts` loaded and to use the starred variants `\textsuperscript*`, `\textsubscript*`, to produce faked super/sub-scripts when needed, coding `H\textsuperscript*{\#}` to get  $H^\#$  while `H\textsuperscript{\#}` would output  $H^\#$  (# missing as superscript).

**oldstylenums:** provides lowercase digits as a default.

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

Examples, upright, italic, bold and bolditalic:

- `o123456789!`
- `o123456789!`
- `o123456789!`
- `o123456789!`

**oldstyle:** provides lowercase digits as a default, long-tailed Q (Quebec) and (for Roman and Sans-Serif fonts only) old style ligatures ‘Œ’ and ‘Ŧ’.

Examples:

- `QueŦ for an attractive font!`
- `QueŦ for an attractive font!`
- `QueŦ for an attractive font!`
- `QueŦ for an attractive font!`
- `QueŦ for an attractive font!`
- `QueŦ for an attractive font!`

**veryoldstyle:** same as option `oldstyle` but the round ‘s’ is replaced by the long one ‘f’ unless it ends a word or is followed by *b*, *f* or *h*<sup>3</sup> and ancient ligatures *fi*, *fl*, *ft* are activated. Coding `\textit{some of Highlands’ mysterious castles...}` will print *some of Highlands’ mysterious castles...* which is correct.

The automatic substitution relies on the OpenType feature `StylisticSet=12`. A round ‘s’ (resp. long ‘f’) can be forced by coding `s=` or `\shorts{}` (resp. `f`<sup>4</sup> or `\longs{}`).

**largesmallcaps:** prints larger SMALL CAPS than the default ones (PETITE 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.

**eurosym :** replaces the Euro character (€) by the official symbol (€) (available in regular, italic, bold and bolditalic).

**harfbuzz :** switches `Renderer=Harfbuzz` for HBLuaTeX engine; up to version 0.34, this renderer was silently activated but seldom useful.

### 1.3 Options for maths fonts *only*

**lightmath:** uses *light* maths fonts.

**sfmath:** uses *sans-serif* maths 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).

**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 :

$\int\!\!\!\int$  and  $\int\!\!\!\!\int$  instead of  $\int\!\!\int$  and  $\int\!\!\int\!\!\int$  (default).

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

**fancyReIm:** commands `\Re` and `\Im` print  $\Re$  and  $\Im$  respectively instead of  $\mathbb{R}$  and  $\mathbb{I}$ .

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

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

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<sup>3</sup>Rules found on [wikipedia](https://en.wikipedia.org/wiki/Very_old_style).

<sup>4</sup>On Unix systems the Compose key can be used: Compose f s.

Please note that the `mathcal` option has been deleted: commands `\mathcal{ABC}` and `\mathscr{ABC}` now print  $ABC$  and  $\mathscr{ABC}$  respectively when `kpfonts-otf.sty` is loaded.

## 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`<sup>5</sup> (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 maths fonts, loading `fontspec` and using the `\set...font` commands is enough, no need to load `kpfonts-otf` at all.

### 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 default is **Numbers=Lining**.

**SmallCapsFeatures = {Letters=SmallCaps}** the `\textsc{}` command will print larger SMALL CAPS than the default PETITE CAPS.

The default setting<sup>6</sup>, is **SmallCapsFeatures = {Letters=PetiteCaps}**.

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

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

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<sup>5</sup>A careful reading of both manuals `unicode-math.pdf` and `fontspec.pdf` (available in all TeX distributions) is required in order to take full advantage of these packages.

<sup>6</sup>Changed in v0.37 to match the original `kpfonts` package.

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

**Ligatures=Required** : adds ft and tt ligatures.

**Ligatures=Rare** adds ct and st ligatures.

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

**Style=Historic** replaces any instance of ‘s’ by the long variant ‘f’. It is still possible to get a round ‘s’ coding it as ‘s=’; this option should no longer be used, it is superseded by **StylisticSet=12** below.

**StylisticSet=12** has been described in option `veryoldstyle` p. 4: it operates a contextual substitution of round ‘s’ by long ‘f’. An alias **Style=autoLongs** is available if `kpfonts-otf.sty` has been loaded.

**Ligatures=Historic** switches specific ligatures for the long f: fi, fl, ft.

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

**StylisticSet=3** replaces the Euro character (€) by the official symbol (€) (available in regular, italics, bold and bolditalic).

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=PetiteCaps},
}
\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 `Kp-fonts`, to define Italic, Bold, BoldItalic faces, there is no need for options `ItalicFont =` , `BoldFont =` .

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 1234567890 with a font loaded with option `Numbers=Lining`:

```
{\addfontfeatures{Numbers=Lowercase}1234567890}
```

Actually, a shortcut is available in this case: `\oldstylenums{1234567890}`.

5. With the **KpRoman**, it is possible to define two more weights *Light* and *Semibold* borrowed from **KpLight**:

```
\newfontfamily\KpLight{KpLight}[<same options as KpRoman>]
\newcommand*\ltseries{\KpLight}
\newcommand*\sbseries{\KpLight\bfseries}
\DeclareTextFontCommand{\textlt}{\ltseries}
\DeclareTextFontCommand{\textsb}{\sbseries}
```

These weights are then available through `\ltseries`, `\sbseries` commands to be used in a group or alternatively through one argument commands `\textlt{}` and `\textsb{}`.

With the **KpLight**, weights *Semibold* and *Extrabold* can be defined similarly.

## 2.2 Options for maths fonts

The following options can be passed either to `unicode-math`<sup>7</sup> or to `\setmathfont{}`:

**math-style** = ISO, TeX (default), french, upright;

**bold-style** = ISO, TeX (default), upright;

**partial** = upright (default italic);

**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 *ABC* instead of *ℳℳℳ* (default), see note below;

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

**Style=narrowiints** (+ss03) provides condensed repeated integrals: *∫∫∫* instead of *∫∫∫* (default).

**Note:** if you want commands `\mathcal{ABC}` and `\mathscr{ABC}` to print *ABC* and *ℳℳℳ* respectively, you can use `unicode-math`’s option range this way:

```
\setmathfont{KpMath-Regular}[options]
\setmathfont{KpMath-Regular}[range={cal,bfcal},StylisticSet=1]
```

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<sup>7</sup>See the manual `unicode-math.pdf`.

Both lines are mandatory: the first one loads **KpMath** as usual while the second one modifies `\mathcal{}` command's output.

The next four tables present the other Style Variants available:

Table 1: Style=leqslant (+ss04)

Command	Default	Variant
<code>\leq</code>	$\leq$	$\leqslant$
<code>\geq</code>	$\geq$	$\geqslant$
<code>\nleq</code>	$\nleq$	$\nleqslant$
<code>\ngeq</code>	$\ngeq$	$\ngeqslant$
<code>\leqq</code>	$\leqq$	$\leqslant$
<code>\geqq</code>	$\geqq$	$\geqslant$
<code>\eqless</code>	$\lessgtr$	$\lessgtr$
<code>\eqgtr</code>	$\gtrless$	$\gtrless$
<code>\lesseqgtr</code>	$\lesseqgtr$	$\lesseqgtr$
<code>\gtreqless</code>	$\gtreqless$	$\gtreqless$
<code>\lesseqqgtr</code>	$\lesseqqgtr$	$\lesseqqgtr$
<code>\gtreqqless</code>	$\gtreqqless$	$\gtreqqless$

Table 2: Style=smaller (+ss05)

Command	Default	Variant
<code>\mid</code>	$\mid$	$\mid$
<code>\nmid</code>	$\mid$	$\mid$
<code>\parallel</code>	$\parallel$	$\parallel$
<code>\nparallel</code>	$\nparallel$	$\nparallel$
<code>\parallelslant</code>	$\parallel$	$\parallel$
<code>\nparallelslant</code>	$\nparallel$	$\nparallel$

Table 3: Style=subsetneq (+ss06)

Command	Default	Variant
<code>\subsetneq</code>	$\subsetneq$	$\subsetneq$
<code>\supsetneq</code>	$\supsetneq$	$\supsetneq$
<code>\subsetneqq</code>	$\subsetneqq$	$\subsetneqq$
<code>\supsetneqq</code>	$\supsetneqq$	$\supsetneqq$

Table 4: Style=parallelslant (+ss07)

Command	Default	Variant
<code>\parallel</code>	$\parallel$	$\parallel$
<code>\nparallel</code>	$\nparallel$	$\nparallel$
<code>\shortparallel</code>	$\parallel$	$\parallel$
<code>\nshortparallel</code>	$\nparallel$	$\nparallel$

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}]` commands `\epsilon` and `\phi` print  $\epsilon$  and  $\phi$  instead of  $\epsilon$  and  $\phi$ . The same is true of course for all shapes and and weights (upright, bold, bolditalic, sans-serif, etc.): f.i. with `math-style=french`, `\epsilon` and `\phi` print  $\epsilon$  and  $\phi$  (upright).

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`).



Table 5: Glyphs Variants

	Default		Variant		Command	
cv00	$\Re$	$\Im$	$\Re$	$\Im$	$\backslash\mathrm{Re}$	$\backslash\mathrm{Im}$
cv01	$\hbar$		$\hbar$		$\backslash\mathrm{hslash}$	or $\backslash\mathrm{hbar}$
cv02	$\emptyset$		$\emptyset$		$\backslash\mathrm{emptyset}$	
cv03	$\epsilon$		$\epsilon$		$\backslash\mathrm{epsilon}$	
cv04	$\kappa$		$\kappa$		$\backslash\mathrm{kappa}$	
cv05	$\pi$		$\varpi$		$\backslash\mathrm{pi}$	
cv06	$\phi$		$\varphi$		$\backslash\mathrm{phi}$	
cv07	$\rho$		$\rho$		$\backslash\mathrm{rho}$	
cv08	$\sigma$		$\varsigma$		$\backslash\mathrm{sigma}$	
cv09	$\theta$		$\vartheta$		$\backslash\mathrm{theta}$	
cv10	$\Theta$		$\Theta$		$\backslash\mathrm{Theta}$	

### 3 Specific commands defined in `kpfonts-otf.sty`

#### 3.1 Integrals

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

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

`\D{...}` prints an upright ‘d’ and improves kernings around the differential element: `\displaystyle\varint f(t)\D{t}` prints  $\int f(t) dt$ .

#### 3.2 Specific maths symbols

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

$\backslash\mathrm{mmapsto}$	$\mapsto$	$\backslash\mathrm{longmmapsto}$	$\longmapsto$
$\backslash\mathrm{mmapsfrom}$	$\mapsfrom$	$\backslash\mathrm{longmmapsfrom}$	$\longmapsfrom$
$\backslash\mathrm{Mmapsto}$	$\Mmapsto$	$\backslash\mathrm{Longmmapsto}$	$\Longmmapsto$
$\backslash\mathrm{Mmapsfrom}$	$\Mmapsfrom$	$\backslash\mathrm{Longmmapsfrom}$	$\Longmmapsfrom$
$\backslash\mathrm{leftrightrightarrow}$	$\leftrightarrow$	$\backslash\mathrm{leadsto}$	$\leadsto$
$\backslash\mathrm{boxright}$	$\boxrightarrow$	$\backslash\mathrm{boxleft}$	$\boxleftarrow$
$\backslash\mathrm{circleright}$	$\circrightarrow$	$\backslash\mathrm{circleleft}$	$\circleftarrow$
$\backslash\mathrm{Diamondright}$	$\Diamondrightarrow$	$\backslash\mathrm{Diamondleft}$	$\Diamondleftarrow$
$\backslash\mathrm{boxdotright}$	$\boxdotrightarrow$	$\backslash\mathrm{boxdotleft}$	$\boxdotleftarrow$
$\backslash\mathrm{circledotright}$	$\circledrightarrow$	$\backslash\mathrm{circledotleft}$	$\circledleftarrow$
$\backslash\mathrm{Diamonddotright}$	$\Diamonddotrightarrow$	$\backslash\mathrm{Diamonddotleft}$	$\Diamonddotleftarrow$

$\backslash\boxRight$	$\boxRightarrow$	$\backslash\boxLeft$	$\boxLeftarrow$
$\backslash\boxdotRight$	$\boxdotRightarrow$	$\backslash\boxdotLeft$	$\boxdotLeftarrow$
$\backslash\DiamondRight$	$\DiamondRightarrow$	$\backslash\DiamondLeft$	$\DiamondLeftarrow$
$\backslash\DiamonddotRight$	$\DiamonddotRightarrow$	$\backslash\DiamonddotLeft$	$\DiamonddotLeftarrow$
$\backslash\multimapdot$	$\multimapdot$	$\backslash\multimapdotinv$	$\multimapdotinv$
$\backslash\multimapdotboth$	$\multimapdotboth$		
$\backslash\multimapbothvert$	$\multimapbothvert$	$\backslash\multimapdotbothvert$	$\multimapdotbothvert$
$\backslash\multimapdotbothAvert$	$\multimapdotbothAvert$	$\backslash\multimapdotbothBvert$	$\multimapdotbothBvert$
$\backslash\capplus$	$\capplus$	$\backslash\squcupplus$	$\squcupplus$
$\backslash\parallelslant$	$\parallel$	$\backslash\colonsim$	$\colonsim$
$\backslash\parallelbackslant$	$\parallel$	$\backslash\Colonsim$	$\Colonsim$
$\backslash\eqqColon$	$\equiv$	$\backslash\Colondash$	$\Colondash$
		$\backslash\dashColon$	$\dashColon$
$\backslash\strictif$	$\strictif$	$\backslash\strictfi$	$\strictfi$
$\backslash\circledvee$	$\circledvee$	$\backslash\circledwedge$	$\circledwedge$
$\backslash\openJoin$	$\openJoin$	$\backslash\opentimes$	$\opentimes$
$\backslash\lambdash$	$\lambdash$	$\backslash\lambdabar$	$\lambdabar$
		$\backslash\Wdash$	$\Wdash$
		$\backslash\Wright$	$\Wright$
$\backslash\idotsint$	$\idotsint$		
$\backslash\ointclockwise$	$\ointclockwise$	$\backslash\varointctrackclockwise$	$\varointctrackclockwise$
$\backslash\oiintclockwise$	$\oiintclockwise$	$\backslash\oiintctrackclockwise$	$\oiintctrackclockwise$
$\backslash\varoiintclockwise$	$\varoiintclockwise$	$\backslash\varoiintctrackclockwise$	$\varoiintctrackclockwise$
$\backslash\oiintclockwise$	$\oiintclockwise$	$\backslash\oiintctrackclockwise$	$\oiintctrackclockwise$
$\backslash\varoiintclockwise$	$\varoiintclockwise$	$\backslash\varoiintctrackclockwise$	$\varoiintctrackclockwise$
$\backslash\squint$	$\squint$	$\backslash\squiiint$	$\squiiint$

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

### 3.3 Wide accents

- `\wideoverbar` and `\mathunderbar`<sup>8</sup>

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

<sup>8</sup>`\overline` and `\underline` are not font related, they are based on `\rule`.

- `\widehat` and `\widetilde`

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

- `\widecheck` and `\widebreve`

$$\check{x} \check{xxx} \check{xxxx} \check{xxxxx} \breve{x} \breve{xxx} \breve{xxxxx}$$

- `\overparen` and `\underparen`

$$\overparen{x} \overparen{xy} \overparen{xyz} \overparen{A \cup B} \overparen{A \cup (B \cap C) \cup D} \overparen{x+y}^2 \overparen{a+b+\dots+z}^{26}$$

$$\underparen{x} \underparen{xz} \underparen{xyz} \underparen{x+z}_2 \underparen{a+b+\dots+z}_{26}$$

- `\overbrace` and `\underbrace`

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

$$\underbrace{a} \underbrace{ab} \underbrace{abc} \underbrace{abcd} \underbrace{abcde} \underbrace{a+b+c}_3 \underbrace{a+b+\dots+z}_{26}$$

- `\overrightarrow` and `\overleftarrow`

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

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

- Finally `\widearc` and `\widearcarrow` (or `\overrightarrowarc`)

$$\widearc{AMB} \widearcarrow{AMB}$$

All the extensible arrows provided by the `mathtools` package are available (loading `kpfonts-otf.sty` is required), f.i.:

$$X \overset{\text{above}}{\longleftrightarrow} Y \overset{\text{above}}{\underset{\text{under}}{\longrightarrow}} Z \overset{\text{above}}{\longrightarrow} W$$

A wide range of extensible vertical delimiters is provided:

$$\left/ \left( \begin{matrix} a_1 \\ a_2 \\ a_3 \end{matrix} \right) \left[ \begin{matrix} a_1 \\ a_2 \\ a_3 \end{matrix} \right] \left\{ \begin{matrix} a_1 \\ a_2 \\ a_3 \end{matrix} \right\} \left| \begin{matrix} a_1 \\ a_2 \\ a_3 \end{matrix} \right| \left\| \begin{matrix} a_1 \\ a_2 \\ a_3 \end{matrix} \right\| \left| \left[ \begin{matrix} a_1 \\ a_2 \\ a_3 \end{matrix} \right] \right| \left[ \begin{matrix} a_1 \\ a_2 \\ a_3 \end{matrix} \right] \left\| \left[ \begin{matrix} a_1 \\ a_2 \\ a_3 \end{matrix} \right] \right\| \left\langle \begin{matrix} a_1 \\ a_2 \\ a_3 \end{matrix} \right\rangle \left\langle \left\langle \begin{matrix} a_1 \\ a_2 \\ a_3 \end{matrix} \right\rangle \right\rangle \right.$$

### 3.4 Maths 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<sup>9</sup>:

```
\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:

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

`\mathversion{bold}`

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

`\mathversion{sans}`

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

To get bold formulas you do not need to define `\mathversion{bold}`, you can just use the `\boldmath` command: f.i. `\boldmath $E=mc^2$` prints  $E = mc^2$ .

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<sup>9</sup>Option `CharacterVariant=3` changes  $\epsilon$  into  $\varepsilon$ .