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^{st}, 2^{nd}…

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: 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 (default) or 𝔸𝔹ℂ (option `[Style=bbsans]`) Commands `\mathcal{ABC}` and `\mathscr{ABC}` print respectively $\mathcal{ABC}$ and $\mathscr{ABC}$ while `\mathfrak{ABCabc}` prints 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 (0.48).

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 `realscripts`, 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 [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 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`.

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*.

1. Unicode names often differ from AMS names.

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 !***

oldstyle: provides lowercase digits as a default, long-tailed Q (Quebec) and (for Roman and Sans-Serif fonts only) old style ligatures 'ct' and '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 or is followed by *b*, *f* or *h* [2] and ancient ligatures ﬁ, ﬂ, ﬅ 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 'ſ') can be forced by coding `s=` or `\shorts{}` (resp. `ſ` [3] 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.

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.

2. Rules found on wikipedia.
3. On Unix systems the `Compose` key can be used: `Compose f s`.

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

narrowiints: prints condensed repeated integrals :

$\iiint$ and $\iiiint$ instead of $\iiint$ and $\iiiint$ (default).

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

fancyRelm: commands `\Re` and `\Im` print $\Re$ and $\Im$ respectively instead of $\Re$ and I.

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

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

Please note that the **mathcal** option has been deleted: commands `$\mathcal{ABC}$` and `$\mathscr{ABC}$` now print $\mathcal{ABC}$ 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`[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 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**.

4. A careful 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.

SmallCapsFeatures = {Letters=SmallCaps} the `\textsc{}` command will print larger SMALL CAPS than the default PETITE CAPS.
The default setting [5], is **SmallCapsFeatures = {Letters=PetiteCaps}**.

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

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

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 ‘ſ’. 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. 3: it operates a contextual substitution of round ‘s’ by long ‘ſ’. An alias `Style=autolongs` is available if `kpfonts-otf.sty` has been loaded.

Ligatures=Historic switches specific ligatures for the long ſ: ſi, ſl, ſt.

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 Kpfonts.

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

5. Changed in v0.37 to match the original `kpfonts` package.

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 shortcut is available in this case: `\oldstylenums{1234576890}`.

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`[6] 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 $\mathcal{ABC}$ instead of $\mathscr{ABC}$ (default), see note below;

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

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

Note: if you want commands `$\mathcal{ABC}$` and `$\mathscr{ABC}$` to print $\mathcal{ABC}$ and $\mathscr{ABC}$ respectively, you can use `unicode-math`'s option `range` this way:
`\setmathfont{KpMath-Regular}[`*options*`]`
`\setmathfont{KpMath-Regular}[range={cal,bfcal},StylisticSet=1]`
Both lines are mandatory: the first one loads **KpMath** as usual while the second one modifies `\mathcal{}` command's output.

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

The next four tables present the other Style Variants available:

Table 1 – Style=leqslant (+ss04)

Command	Default	Variant
\leq	≤	⩽
\geq	≥	⩾
\nleq	≰	⩽̸
\ngeq	≱	⩾̸
\leqq	≦	⩽
\geqq	≧	⩾
\eqless	⋚	⪕
\eqgtr	⋛	⪖
\lesseqgtr	⋚	⪋
\gtreqless	⋛	⪌
\lesseqqgtr	⋚	⪋
\gtreqqless	⋛	⪌

Table 2 – Style=smaller (+ss05)

Command	Default	Variant
\mid	∣	∣
\nmid	∤	∤
\parallel	∥	∥
\nparallel	∦	∦
\parallelslant	⫽	⫽
\nparallelslant	⫽̸	⫽̸

Table 3 – Style=subsetneq (+ss06)

Command	Default	Variant
\subsetneq	⊊	⫋
\supsetneq	⊋	⫌
\subsetneqq	⫋	⫋
\supsetneqq	⫌	⫌

Table 4 – Style=parallelslant (+ss07)

Command	Default	Variant
\parallel	∥	⫽
\nparallel	∦	⫽̸
\shortparallel	∥	⫽
\nshortparallel	∦	⫽̸

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 ε and φ instead of ϵ and 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 (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	$\Re$ $\Im$	$\mathfrak{Re}$ $\mathfrak{Im}$	\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

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`, `\variiiint` and `\varidotsint`. Compare $\int f(t)\,dt$ and $\int f(t)\,dt$ and also

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

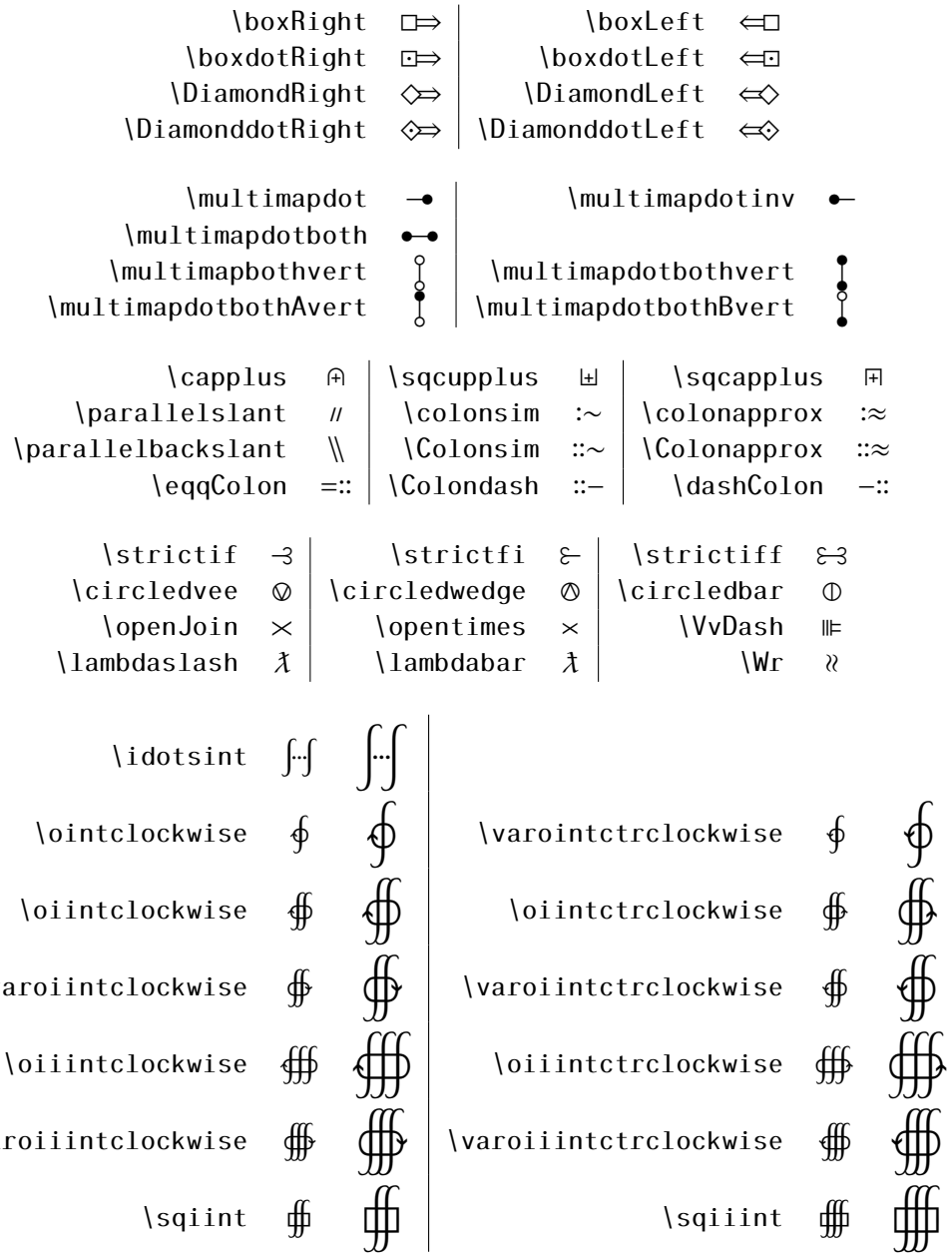
`\D{...}` prints an upright 'd' and improves kernings around the differential element: `\displaystyle\varint f(t)\D{t}` prints $\displaystyle\int f(t)\,\mathrm{d}t$.

3.2 Specific maths symbols

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

\mmapsto	$\mapsto$	\longmmapsto	$\longmapsto$
\mmapsfrom	$\mapsfrom$	\longmmapsfrom	$\longmapsfrom$
\Mmapsto	$\Mapsto$	\Longmmapsto	$\Longmapsto$
\Mmapsfrom	$\Mapsfrom$	\Longmmapsfrom	$\Longmapsfrom$
\leftrightdasharrow	$\leftrightarrow$	\leadsto	$\rightsquigarrow$

\boxright	$\boxright$	\boxleft	$\boxleft$
\circleright	$\circleright$	\circleleft	$\circleleft$
\Diamondright	$\Diamondright$	\Diamondleft	$\Diamondleft$
\boxdotright	$\boxdotright$	\boxdotleft	$\boxdotleft$
\circledotright	$\circledotright$	\circledotleft	$\circledotleft$
\Diamonddotright	$\Diamonddotright$	\Diamonddotleft	$\Diamonddotleft$



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

3.3 Wide accents

— `\wideoverbar` and `\mathunderbar`[7]

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

7. `\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`

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

— `\overparen` and `\underparen`

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

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

— `\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` (or `\overrightarc`)

$$\overarc{AMB}\quad\overarcarrow{AMB}$$

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 [8] :

```
\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}
```

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

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