

The Baskervaldx package

Michael Sharpe

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The fonts included in this package are extensions and modifications of regular and bold weights of the baskervald fonts, which serve as a replacement for Baskerville. The changes provide small caps in all four styles, and a total of four ordinary figure types {tabular, proportional}×{lining, oldstyle} in each of those styles. The xheights of the two upright shapes has been increased from 415em to 432em to better match the Italic and other subsidiary fonts, and the ascender sizes have been shortened to avoid height problems. Many new accented glyphs have been added so that all characters in T1 encoding are available except for the Sami characters Eng and eng. This left three unused slots in T1, and those have been filled with three ligatures f_j, f_f_j and c_t, only the first two of which are activated by default, along with the usual f-ligatures f_i, f_l, f_f_i, f_f_l, f_f. (In LY1, an additional two ligatures are available: s_p and s_t, also not activated by default.)

The package has the following options:

- scaled=1.02 would magnify all Baskervaldx fonts by the factor 1.02.
- lining (or lf) chooses lining figure style. This is the default.
- osf (or oldstyle) sets the figure style to oldstyle rather than lining for text. (Math mode will in any case use tabular lining figures.)
- tabular sets the figure alignment to fixed width rather than proportional. This is the default.
- proportional sets the figure alignment to depend on the figure rather than be fixed width.
- sups mandates the use of superior figures from Baskervaldx as footnote and endnote markers, replacing L^AT_EX's default method. For greater control, use the superiors package.
- swash determines which additional ligatures will be used throughout text in the document. As mentioned above, in both T1 and LY1 encodings (the only ones supported), the following are always used:
 - f_f (ff) replaces ff.
 - f_i (fi) replaces fi.
 - f_l (fl) replaces fl.
 - f_f_i (ffi) replaces ffi.
 - f_f_l (ffl) replaces ffl.
 - f_j (fj) replaces fj.
 - f_f_j (ffj) replaces ffj.

The option `swash` adds the following, depending on the encoding:

T1 encoding:

- `c_t` ($\text{\textcircled{t}}$) replaces `ct`.

LY1 encoding:

- `c_t` ($\text{\textcircled{t}}$) replaces `ct`.
- `s_p` ($\text{\textcircled{p}}$) replaces `sp`.
- `s_t` ($\text{\textcircled{t}}$) replaces `st`.

Macros defined by the package:

- Figure styles may be set locally by the macros `\textlft`, `\texttltf`, `\textosf`, `\texttosf` and `\textsu`, whose meaning are:

- `\textlft` (lining, proportional)
- `\texttltf` (lining, tabular)
- `\textosf` (osf, proportional)
- `\texttosf` (osf, tabular)
- `\textsu` (superior)

For example, though this document uses the options `osf`, `tabular`, `\textlft{123}` uses proportional lining figures for its argument—123, and `\textsu{123}` sets its argument in superior figures—¹²³.

- `\textcircled` draws a circle around a small cap rendition of its argument, which should be exactly one unaccented character. In order to function correctly, you must load `textcomp` prior to loading `Baskervaldx`, with invocation

```
\usepackage[full]{textcomp} % even though it is not "full"
```

For example, `\textcircled{A}` yields $\text{\textcircled{A}}$.

- `\swshape` switches on italic shape with all possible ligatures activated. (This depends of course on the encoding chosen.) For example, in both T1 and LY1,

```
{\swshape Act effectively\}
```

produces *Act effectively*.

1 Accompanying math package

I had intended to make a new option `baskervaldx` for `newtxmath` which drew on `Baskervaldx` for its math italic letters, but that will take quite some time to complete. Meanwhile, I find ordinary `newtxmath` works quite well, as in:

```
\usepackage[osf]{Baskervaldx} % tosf in text, tlf in math
\usepackage[bigdelims,vvarbb]{newtxmath} % math italic letters from Times
\usepackage[cal=boondoxo]{mathalfa} % mathcal from STIX, unslanted a bit
```

Here's an example to show both source and typeset text with this combination.

```
\textbf{Simplest form of the \textit{Central Limit Theorem}:} \textit{Let}
$X_1$, $X_2$, \cdots$ be a sequence of iid random variables with mean $0$
and variance $1$ on a probability space $(\Omega, \mathcal{F}, \mathbb{P})$. Then}
\[\mathbb{P}\left(\frac{X_1+\cdots+X_n}{\sqrt{n}}\leq y\right) \rightarrow \frac{1}{\sqrt{2\pi}}\int_{-\infty}^y
\frac{\mathrm{e}^{-t^2/2}}{\sqrt{2\pi}}\mathrm{d}t\quad\text{as }n\rightarrow\infty,\]
\textit{or, equivalently, letting} $S_n=\sum_{k=1}^n X_k$,
\[\mathbb{E}\left[f\left(\frac{S_n}{\sqrt{n}}\right)\right]\rightarrow \int_{-\infty}^{\infty} f(t)
\frac{\mathrm{e}^{-t^2/2}}{\sqrt{2\pi}}\mathrm{d}t, \quad \text{for every }f\in\mathcal{C}(\mathbb{R}).\]
```

Simplest form of the *Central Limit Theorem*: *Let X_1, X_2, \dots be a sequence of iid random variables with mean 0 and variance 1 on a probability space $(\Omega, \mathcal{F}, \mathbb{P})$. Then*

$$\mathbb{P}\left(\frac{X_1 + \cdots + X_n}{\sqrt{n}} \leq y\right) \rightarrow \mathfrak{N}(y) := \int_{-\infty}^y \frac{e^{-t^2/2}}{\sqrt{2\pi}} dt \quad \text{as } n \rightarrow \infty,$$

or, equivalently, letting $S_n := \sum_{k=1}^n X_k$,

$$\mathbb{E}f\left(\frac{S_n}{\sqrt{n}}\right) \rightarrow \int_{-\infty}^{\infty} f(t) \frac{e^{-t^2/2}}{\sqrt{2\pi}} dt \quad \text{as } n \rightarrow \infty, \text{ for every } f \in \mathcal{C}(\mathbb{R}).$$