

TEX SUPPORT FOR HEURISTICA

MICHAEL SHARPE

Andrey V. Panov's *Heuristica* font family extends the *Utopia* font family, adding many accented glyphs, Cyrillic glyphs, ligatures, superior and oldstyle fixed-width figures in all styles, and Small Caps in Regular style only. The font package is widely distributed as a free font collection in OpenType, TrueType and Type1 formats, but not until now on CTAN with complete TEX support files in encodings T1+TS1, LY1, T2A, T2B and T2C.

The `newtx` package has been modified, as of version 1.26, to offer a new option `utopia` (or, equivalently, `heuristica`) that uses math italic glyphs taken from *Utopia* and old-style figures from *Heuristica*. Its slanted Greek alphabets are constructed from the `txfonts` slanted Greek letters by reducing their italic angle from 15.5° to 13°, matching *Utopia*'s italic angle. So, for *Heuristica* text and matching math, you can use¹:

```
\usepackage[osf,scaled=.92]{heuristica}
\usepackage[varqu,varl]{inconsolata} % typewriter
\usepackage[type1,scaled=.95]{cabin} % sans serif like Gill Sans
\usepackage{utopia,vvarbb,bigdelims}{newtxmath}
```

The effect of the option `osf` is to force the default figure style in `heuristica` to be old-style 0123456789 while using lining figures 0123456789 in math mode. The only other option of interest is `sup`, which changes the footnote marker style to use the superior figures from *Heuristica* rather than the default mathematical superscripts. (The `superiors` package offers further options.)

Heuristica is so austere for a text font and *inconsolata* is so fancy for a typewriter font that you may find they blend together all too well. For more of a distinction replace the `inconsolata` line above with

```
\usepackage{zlm} % serifed typewriter font extending cmtt
```

As I find *Utopia* text rather cramped, I suggest applying a small amount of letterspacing (tracking) and increasing the interword spacing by means of the `microtype` package. Alternatively, as of version 1.09, this package offers complete control over word-spacing by specifying the options described below. *Heuristica* word-spacing is governed by three quantities:

- spacing (default value `.211em`), `\fontdimen2` of the main text font.

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¹There is most likely also a way to use `MathDesign` or `fourier` with at least partial compatibility.

- stretch (default value 1.055em), $\fontdimen3$ of the main text font.
- shrink (default value $.0703\text{em}$), $\fontdimen4$ of the main text font.

(Note the use of em values rather than absolute values so that word spacing responds to scale changes.) You may modify these values individually or by setting a value for the option space or by specifying looser or loosest.

- Option `spacing=.24em` would change the spacing from $.211\text{em}$ to $.24\text{em}$.
- Option `stretch=.14em` would change the stretch from $.1055\text{em}$ to $.14\text{em}$.
- Option `shrink=.1em` would change the shrink from $.0703\text{em}$ to $.1\text{em}$.
- Option `space=1.2` would multiply each word-spacing parameter by the factor 1.2. (The option space with no value would result in a factor of 1.23, leading to a spacing value of close to $.26\text{em}$. This documentation uses option space with no value specified.)
- Option `looser` would change the three parameters to $.25\text{em}$, $.125\text{em}$, $.1\text{em}$ respectively.
- Option `loosest` would change the three parameters to $.28\text{em}$, $.125\text{em}$, $.13\text{em}$ respectively.

MACROS:

- `\textlf` and `\texttlf` render their arguments in tabular lining figures, no matter what the default figure style. Eg, `\textlf{345}` produces 345.
- `\textosf` and `\texttosf` render their arguments in tabular oldstyle figures, no matter what the default figure style. Eg, `\textosf{345}` produces 345.
- `\textsu` renders its argument in superior figures, no matter what the default figure style. Eg, `\textsu{345}` produces ³⁴⁵.
- `\textin` renders its argument in inferior figures, no matter what the default figure style. Eg, `\textin{345}` produces ₃₄₅.
- `\textfrac` renders its two arguments as a fraction, using `\textsu` for the numerator and `\textin` for the denominator. Eg, `\textfrac{31}{64}` produces $\frac{31}{64}$.

VERY BRIEF, NONSENSICAL MATH EXAMPLE:

Let $B(X)$ be the set of blocks of Λ_X and let $b(X) := |B(X)|$ so that $\hat{\phi} = \sum_{Y \subset X} (-1)^{b(Y)} b(Y)$.