arsenal—LaTeX support of Arsenal fonts by Andrij Shevchenko

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Abstract

Arsenal is the font created by Andrij Shevchenko. It won Ukrainian Type Design Competition 'Mystetsky Arsenal' in 2011. This package provides LaTeX support for it and matching math fonts.

Contents

1 User manual

1.1 Introduction

In 2011 the Ukrainian Type Design Competition "Mystetsky Arsenal" (http://www.ukrainian-type.com/about/) was won by the font by Andrij Shevchenko. The competiton was aimed at the creation of a modern practical font based on Ukrainian traditions. The winner is remarkable for its clarity and clean shapes.

Later the font was extended by Alexei Vanyashin & cyreal.org, Nhung Nguyen, and Marc Foley (see https://github.com/alexeiva/Arsenal). The font now supports a large number of languages with Latin and Cyrillic alphabet, it has real small caps, historic forms, swash capitals and many other features.

This package provides LaTeX interface for the font and optionally math support.

Since the font it in OTF format, you do need a Unicode engine like XeLaTeX or LuaLaTeX to use it.

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1.2 Package options

default
sfdefault
math
scale
Scale

The options for the package use the key-value interface. The part `=true` for the boolean options can be dropped.

The following options are recognized:

default whether to make Arsenal the main font of the document, either `true` (the default) or `false`.

sfdefault whether to make Arsenal the sans serif font of your document, either `true` or `false` (the default).

math whether to enable math support. The currently recognized options are `none`, `arsenal+kpsans`, `kpsans`, and `iwona`. The meaning is the following:

arsenal+kpsans Use native font for math, adding missing letter from the OTF version of KpSans font [Flipo, 2023]. Unfortunately this option presently does not work properly with XeTeX, using wrong font dimensions resulting in rather bad spacing.

kpsans Use OTF version of KpSans font [Flipo, 2023] for math.

iwona Use use iwonamath [Veytsman, 2023] for math.

none Do not define math fonts, leaving the math setup to the user.

The default depends on whether Arsenal is your main font and which engine is used:

1. If Arsenal is the main font, and XeTeX is used, then `iwona`.
2. If Arsenal is the main font, and LuaTeX is used, then `arsenal+kpsans`.
3. If Arsenal is not your main font, then `none`.

scale the scale for the font, by default 0.89. The option `Scale` is a synonym.

1.3 Font features

\arsenalfamily
\textarsenal

`\arsenalfamily` ⟨*text*⟩
`\textarsenal{`⟨*text*⟩`}`

The font provides the commands `\arsenalfamily` and `\textarsenal` for selecting the font. Alternatively, the NFSS commands `\fontfamily{arsenal}\selectfont` can be used to select Arsenal family.

The font has normal and *italic* shapes, as well as bolded **bold** and ***bold italic***. It has SMALL CAPS, *ITALIC SMALL CAPS*, **BOLD SMALL CAPS** and ***BOLD ITALIC SMALL CAPS***. They are selected by the standard LaTeX commands.

\swshape
\textsw

The font has Swash shape, selected by the commands `\swshape` and `\textsw`. There are both normal and bold versions: *SWASH*, **Bold SWASH**. Moreover, there is an italic version *SWASH*, ***Bold SWASH***, and even a small caps version SWASH, **BOLD SWASH**.

The font has other features, such are two alternate forms and historic style. They can be selected by the fontspec [Robertson and The LaTeX Project Team, 2022] commands like `\addfontfeatures{Style=Historic}` or `\addfontfeautures{Alternate=1}`.

1.4 Special symbols in text

`\texthryvnia` `\texttugrik` `\texttenge` `\textruble`

The font has common currency characters, like `\textdollar` ($), `\textyen` (¥), `\textsterling` (£), `\texteuro` (€). It also defines several less common currency characters: `\texthryvnia` (₴), `\texttugrik` (₮), `\texttenge` (₸), `\textruble` (₽).

`\textaldine` `\textsmilewhite` `\textsmileblack`

The font has `\textnumero` sign: №. It also defines some less common characters: `\textaldine` (℀), `\textsmilewhite` (☺) `\textsmileblack` (☻).

1.5 Math support

The support of math is presently experimental. We offer several options, as discussed above in Section 1.2. Iwona font matches Arsenal in color and sizes, but some letters and proportions are different from those for Arsenal. KpSans seems to be slightly darker. The option of taking Latin letters from Arsenal and the missing symbols from KpSans is attractive, but is currently recommended for LuaTEX only, since the font parameters seem to be misinterpreted by the XETEX engine.

As discussed in kpsans documentation, if you use this package (options `kpsans` and `arsenal+kpsans`), do *not* use amssymb. The corresponding symbols are reimplemented in kpsans, and (almost) all amssymb commands are available by default when one of these options is chosen.

2 Implementation

2.1 Setting up

First, we declare who we are:

```
⟨@@=arsenal⟩
⟨*package⟩
\ProvidesExplPackage {arsenal}
{2023-09-05} {v0.2}
{Arsenal font by Andrij Shevchenko}
```

2.2 Options

default
sfdefault
math
scale
Scale
\l__arsenal_default_bool
\l__arsenal_sfdefault_bool
\l__arsenal_math_tl
\l__arsenal_scale_tl

```
\tl_new:N \l__arsenal_math_tl
\keys_define:nn {arsenal}
{
  default .bool_set:N = \l__arsenal_default_bool,
  default .default:n = true,
  sfdefault .bool_set:N = \l__arsenal_sfdefault_bool,
  sfdefault .default:n = true,
  math .choices:nn = {none, arsenal+kpsans, kpsans, iwona}
  {\tl_set_eq:NN \l__arsenal_math_tl \l_keys_choice_tl },
  scale .tl_set:N = \l__arsenal_scale_tl,
  Scale .tl_set:N = \l__arsenal_scale_tl,
}
\keys_set:nn { arsenal }
{
  default=true,
  sfdefault = false,
  scale = 0.89,
}
\tl_clear:N \l__arsenal_math_tl
```

(*End of definition for* `default` *and others. These variables are documented on page 2.*)

Processing options

```
\IfFormatAtLeastTF { 2022-06-01 }
  { \ProcessKeyOptions [ arsenal ] }
  {
    \RequirePackage { l3keys2e }
    \ProcessKeysOptions { arsenal }
  }
```

And setting up math

```
\tl_if_empty:NT \l__arsenal_math_tl
{
  \bool_if:NTF \l__arsenal_default_bool
  {
    \sys_if_engine_xetex:TF
    {
      \tl_set:Nn \l__arsenal_math_tl {iwona}
    }
    {
      \tl_set:Nn \l__arsenal_math_tl {arsenal+kpsans}
```

```
    }
  }
  {
    \tl_set:Nn \l__arsenal_math_tl {none}
  }
}
```

2.3 Setting up font

```
\RequirePackage{fontspec}
\newfontfamily\arsenalfamily{Arsenal-Regular.otf}
[
  NFSSFamily=arsenal,
  Ligatures=TeX,
  Scale=\l__arsenal_scale_tl,
  ItalicFont = Arsenal-Italic.otf,
  BoldFont = Arsenal-Bold.otf,
  BoldItalicFont = Arsenal-BoldItalic.otf,
  SwashFont = Arsenal-Regular.otf,
  SwashFeatures={Style=Swash},
  BoldSwashFont = Arsenal-Bold.otf,
  BoldSwashFeatures={Style=Swash},
  FontFace = {m}{itsw}{Font = Arsenal-Italic.otf, Style=Swash},
  FontFace = {b}{itsw}{Font = Arsenal-BoldItalic.otf, Style=Swash},
]
```

Checking whether we want the font to be default

```
\bool_if:NT \l__arsenal_default_bool
{
  \renewcommand\rmdefault{arsenal}
}

\bool_if:NT \l__arsenal_sfdefault_bool
{
  \renewcommand\sfdefault{arsenal}
}
```

\textarsenal

```
\DeclareTextFontCommand{\textarsenal}{\arsenalfamily}
```

(*End of definition for* `\textarsenal`. *This function is documented on page* 2.)

Swash changing rules

```
\DeclareFontShapeChangeRule {sw}{it}  {itsw}  {it}
\DeclareFontShapeChangeRule {it}{sw}  {itsw}  {sw}
```

Special characters, absent in the default

\texthryvnia
\texttugrik
\texttenge
\textruble

Currency symbols

```
\DeclareUnicodeSymbol{\texthryvnia}       {"20B4}
\DeclareUnicodeSymbol{\texttugrik}        {"20AE}
\DeclareUnicodeSymbol{\texttenge}         {"20B8}
\DeclareUnicodeSymbol{\textruble}         {"20BD}
```

(*End of definition for* `\texthryvnia` *and others. These functions are documented on page* 3.)

\textaldine
\textsmilewhite
\textsmileblack

Other symbols

```
\DeclareUnicodeSymbol{\textaldine}        {"2767}
\DeclareUnicodeSymbol{\textsmilewhite}    {"263A}
\DeclareUnicodeSymbol{\textsmileblack}    {"263B}
```

(*End of definition for* `\textaldine`, `\textsmilewhite`, *and* `\textsmileblack`. *These functions are documented on page* 3.)

2.4 Math

Iwona is simple...

```
\tl_new:N \l__arsenal_tmp_tl
\tl_if_eq:NnT \l__arsenal_math_tl {iwona}
{
  \tl_set:Nn \l__arsenal_tmp_tl {\fp_to_tl:n {\l__arsenal_scale_tl * 1.1}}
  \RequirePackage[Scale=\l__arsenal_tmp_tl, condensed, light]{iwonamath}
}
```

Now kpsans, see [Flipo, 2023]. We adjust separately upper and lower cases...

```
\tl_if_eq:NnT \l__arsenal_math_tl {kpsans}
{
  \tl_set:Ne \l__arsenal_tmp_tl {\fp_to_tl:n {\l__arsenal_scale_tl * 1.1}}
  \RequirePackage[symbols]{kpfonts-otf}
  \setmathfont{KpMath-Sans.otf}[
  Scale=\l__arsenal_tmp_tl,
  BoldFont=KpMath-SansBold.otf]

  \setmathfont{KpMath-Sans.otf}[
  range={cal,bfcal},
  RawFeature=+ss01,
  Scale=\l__arsenal_tmp_tl,
  BoldFont=KpMath-SansBold.otf]

  \setmathfont{KpMath-Sans.otf}[
  range={
    scr/{Latin},
    bfscr/{Latin},
    frak/{Latin},
    bffrak/{Latin},
    up/{Latin, Greek, misc},
    bb/{Latin, Greek, misc},
    it/{Latin, Greek, misc},
    bbit/{Latin, Greek, misc},
    tt/{Latin, Greek, misc},
    sfup/{Latin, Greek, misc},
    sfit/{Latin, Greek, misc},
    bfup/{Latin, Greek, misc},
    bfit/{Latin, Greek, misc},
    bfsfup/{Latin, Greek, misc},
    bfsfit/{Latin, Greek, misc},
  },
  Scale=\fp_to_tl:n {\l__arsenal_tmp_tl * 0.9},
  BoldFont=KpMath-SansBold.otf]
}
```

And arsenal+kpsans. We again adjust separately upper and lower cases...

```
\tl_if_eq:NnT \l__arsenal_math_tl {arsenal+kpsans}
{
  \sys_if_engine_xetex:T
  {
    \ClassWarningNoLine{arsenal}{Option~ arsenal+kpsans~ may~ not~ work~
      with~ XeTeX~ engine.~  Please~ use~ lualatex}
  }
  \tl_set:Ne \l__arsenal_tmp_tl {\fp_to_tl:n {\l__arsenal_scale_tl * 1.1}}
  \RequirePackage[symbols]{kpfonts-otf}

  \setmathfont{KpMath-Sans.otf}[
  Scale=\l__arsenal_tmp_tl,
  BoldFont=KpMath-SansBold.otf]

  \setmathfont{KpMath-Sans.otf}[
  range={cal/{Latin},bfcal/{Latin}},
  RawFeature=+ss01,
  Scale=\fp_to_tl:n {\l__arsenal_tmp_tl * 0.9},
  BoldFont=KpMath-SansBold.otf]

  \setmathfont{KpMath-Sans.otf}[
  range={
    scr/{Latin, num},
    bfscr/{Latin, num},
    frak/{Latin, num},
    bffrak/{Latin, num},
    up/{Greek, misc, num},
    bb/{Latin, Greek, misc, num},
    it/{Greek, misc, num},
    bbit/{Greek, misc, num},
    tt/{Greek, misc, num},
    sfup/{Greek, misc, num},
    sfit/{Greek, misc, num},
    bfup/{Greek, misc, num},
    bfit/{Greek, misc, num},
    bfsfup/{Greek, misc, num},
    bfsfit/{Greek, misc, num},
  },
  Scale=\fp_to_tl:n {\l__arsenal_tmp_tl * 0.9},
  BoldFont=KpMath-SansBold.otf]


  \setmathfont{Arsenal-Regular.otf}[
  range={
    up/{Latin, latin, num},
    tt/{Latin, latin, num},
    sfup/{Latin, latin, num},
    bfup/{Latin, latin, num},
    bfsfup/{Latin, latin, num},
  },
  Scale=\l__arsenal_scale_tl,
  BoldFont=Arsenal-Bold.otf]

```

```
  \setmathfont{Arsenal-Italic.otf}[
  range={
    it/{Latin, latin, num},
    bbit/{Latin, latin, num},
    sfit/{Latin, latin, num},
    bfit/{Latin, latin, num},
    bfsfit/{Latin, latin, num},
  },
  Scale=\l__arsenal_scale_tl,
  BoldFont=Arsenal-BoldItalic.otf]


}
```

⟨/package⟩

References

Daniel Flipo. *The kpfonts-otf package*, 2023. URL https://ctan.org/pkg/kpfonts-otf.

Will Robertson and The LaTeX Project Team. *The fontspec package*, 2022. URL https://ctan.org/pkg/fontspec.

Boris Veytsman. *The iwonamath package*, 2023. URL https://ctan.org/pkg/iwonamath.

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The italic numbers denote the pages where the corresponding entry is described, numbers underlined point to the definition, all others indicate the places where it is used.

Change History