The bxcjkjatype Package

Takayuki YATO (aka. “ZR”)

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Abstract

This package provides working configuration of the CJK package suitable for Japanese typesetting of moderate quality. Moreover, it facilitates use of the CJK package for pLaTeX users, by providing commands that are similar to those used by the pLaTeX kernel and some other packages used with it.

Contents

1 Package Loading

`\usepackage[<option>,...]{bxcjkjatype}`

The available options are described hereafter.

1.1 Options for auto-wrapping

These options enable one to wrap the document body with a `CJK(*)` environment automatically and safely. They are suitable when a document contains much amount of CJK text, or some “moving arguments” hold CJK text.

- `whole`, `wholeCJK*`: Wraps the whole document body with a `CJK*` environment (precisely speaking, with `\begin{uCJK*}`...`\end{uCJK*}`).

- `wholeCJK`: Wraps the whole document body with a `CJK` environment (precisely speaking, with `\begin{uCJK}`...`\end{uCJK}`).
- `nowhole` (default): Negation of `wholeCJK*` or `wholeCJK`.

1.2 Options for "auto-tilde"

The option `autotilde` triggers automatic invocation of `\CJKtilde`, which makes a tilde character (`~`) insert "shibuaki" (a thin space between alphabetic and ideographic letters) rather than a no-break space (standard). No-break spaces can still be inserted by the command `\nbs`, and `\standardtilde` cancels the effect of `\CJKtilde`. (The commands mentioned here belong to CJK package.)

- `autotilde`: Makes `\CJKtilde` invoked at the beginning of every `CJK(*)` environment.
- `noautotilde` (default): Negation of `autotilde`.

1.3 Options for font-mapping

One can use preset font mappings in the same way as in the pxchfon package. Please refer to the manual of that package for detailed explanation of this feature.

- `oneweight`, `nooneweight`: The same as in pxchfon.
- One can use font preset options (such as `ms`) which are available in pxchfon (except obsolete ones).
- `ttfname=`⟨*pattern*⟩: Specifies the pattern of the TTF font names which are used when TTC substitution is employed. For example, when the option `ttfname=*_1` is given, the font "index 0 of mogam.ttc" will map to "mogam_1.ttf", and similarly, "index 1" to "mogam_2.ttf" and so on.
- `ipaex-type1`: Disables the font management of this package and directly uses the families provided by the ipaex-type1 package, namely `ipxm` and `ipxg`. In this setting the value of `\mcdefault` is `ipxm` and the value of `\gtdefault` and `\mgdefault` is `ipxg`, so that the higher level commands (such as `\sffamily` and `\gtfamily`) can work correctly.

1.4 Options for CJK font scaling

- `scale=`⟨*real*⟩: Sets the scaling factor for CJK fonts.

(When using version 0.3 or later, one can employ the scaling even with the `ipaex-type1` option.)

1.5 Options for configuring "Shibuaki" in PDF strings

In LaTeX grammar `~` represents a non-breaking space. Accordingly, when the hyperref package generates PDF strings, `~` in LaTeX text will be converted to a space character.

However, when `\CJKtilde` of the CJK package is effective the meaning of `~` changes to "shibuaki". The shibuaki is device on typesetting and is not a space as text data. Thus when this package is loaded, `~` with `\CJKtilde` effective is tailored to be deleted in conversion to PDF strings.

Moreover this behavior can be configured by options.

- `noCJKtildeasspace` (default): When `\CJKtilde` is effective, `~` will be deleted. in conversion to PDF strings.
- `CJKtildeasspace`: When `\CJKtilde` is effective, `~` will be converted to a space character. (This is the same behavior as when this package is not used.)

1.6 Other options

- `everypage`: Outputs the font mapping information on every page of the resulted DVI document. Available only with `dvipdfmx` driver.
- `noeverypage` (default): Negation of `everypage`.
- driver options: `pdftex`, `dvipdfmx`, `dvips` and `none` are available. The driver setting is relevant only when using font mappings other than the default one (ipaex-type1 fonts), so one need not care of drivers in using default fonts. Moreover, non-default font mappings are supported only by `pdftex` and `dvipdfmx`, and these two values are auto-detected (`pdftex` is default in PDF mode and `dvipdfmx` in DVI mode). Thus one will never need to specify the driver.
- `substmingoth`: Applies the substituion of families `min`, `goth` and `maru` (used conventionally for Japanese) with families `mc`, `gt` and `mg` (standard in this package).
- `nosubstmingoth` (default): Negation of `substmingoth`.
- `boldbyembolden` (default): Changes the implementation of `\CJKbold` (pseudo-bold) from "overstriking" to "synthetic emboldening".
- `noboldbyembolden`: Negation of `boldbyembolden`.
- `CJKtildeasspace`: When hyperref is used, `~` in text will be converted to a space character in generating PDF strings. This is the same behavior as when this package is not used.
- `noCJKtildeasspace` (default): Negation of `CJKtildeasspace`, that is, `~` in text will be deleted in PDF strings.

2 Usage

2.1 Selecting CJK fonts

The present package provides three "generic" CJK families in the same way as pLaTeX plus the japanese-otf package: Mincho family (`\mcfamily`), Gothic family (`\gtfamily`), and Maru-gothic family (`\mgfamily`). In default setting, the font set from the ipaex-type1 package are allocated; Mincho family uses IPAex Mincho font, and Gothic and Maru-gothic families use IPAex Gothic font. This allocation can be altered by users.

- `\mcfamily`: Changes the CJK family to Mincho family.
  Equivalent to `\CJKfamily{\mcdefault}`.
- `\gtfamily`: Changes the CJK family to Gothic family.
  Equivalent to `\CJKfamily{\gtdefault}`.
- `\mgfamily`: Changes the CJK family to Maru-gothic family.
  Equivalent to `\CJKfamily{\mgdefault}`.

More advanced commands:

- `\mcdefault`/`\gtdefault`/`\mgdefault`: The names of CJK families corresponding to the three generic families. In the standard allocation their values are `mc`/`gt`/`mg` respectively and the allocation is used as default.
- `\setCJKfamilydefault{`⟨*CJK-family*⟩`}`: Declares the default CJK family. This default value is used when family names are missing in some commands, such as `\CJKfamily{}` and `\begin{CJK}{UTF8}{}`. The (redefined) `\normalfont` also switches the CJK family to the family specified by this command.

  The default value of this default family is the "counterpart" of the alphabetic font family which is in effect at the beginning of the document body. (See the next section.)

2.2 Synchronization of CJK and non-CJK families

The CJK package (and pTEX engine) manages separate "current families" for CJK and alphabetic (non-CJK) families. While this treatment has its merit, synchronization of the two "current families" is convenient in many cases. Accordingly, the present package redefines some of the LaTeX commands that switches current alphabetic font families so that the CJK family will be switched to the counterpart of the current alphabetic family, where the "counterpart" is defined as follows:

- `\rmfamily` (Serif) → `\mcfamily` (Mincho)
- `\sffamily` (Sans-serif) → `\gtfamily` (Gothic)
- `\ttfamily` (Monospace) → `\gtfamily` (Gothic)
- The counterpart of the other families is `\mcfamily`.

Redefined commands:

- `\rmfamily`/`\sffamily`/`\ttfamily`: Changes the CJK family to the counterpart of the alphabetic font family after executing the original function.
- `\normalfont`: Changes the CJK family to the default CJK family that is specified by the `\setCJKfamilydefault` command.

There are shorthand forms of `CJK`/`CJK*` environments:

- `\begin{uCJK*}`...`\end{uCJK*}`: Equivalent to:

  ```
  \begin{CJK*}{UTF8}{counterpart}...\end{CJK*}
  ```

  where `counterpart` means the counterpart of the current alphabetic font family.

  Note that this is *not* equivalent to

  ```
  \begin{CJK*}{UTF8}{}...\end{CJK*}
  ```

  structure, which uses the default CJK family.
- `\begin{uCJK}`...`\end{uCJK}`: Equivalent to:

  ```
  \begin{CJK}{UTF8}{counterpart}...\end{CJK}
  ```

2.3 Font mapping

The usage of these commands are the same as in the pxchfon package. Please refer to the manual of that package for detail.

- `\setminchofont{`⟨*id*⟩`]{`⟨*font-file*⟩`}`
- `\setgothicfont{`⟨*id*⟩`]{`⟨*font-file*⟩`}`
- `\setmarugothicfont{`⟨*id*⟩`]{`⟨*font-file*⟩`}`
- `\setmediumminchofont{`⟨*id*⟩`]{`⟨*font-file*⟩`}`
- `\setboldminchofont{`⟨*id*⟩`]{`⟨*font-file*⟩`}`
- `\setmediumgothicfont{`⟨*id*⟩`]{`⟨*font-file*⟩`}`
- `\setboldgothicfont{`⟨*id*⟩`]{`⟨*font-file*⟩`}`
- `\setxboldgothicfont{`⟨*id*⟩`]{`⟨*font-file*⟩`}`

However there is a major limitation as to the use of font mapping with the pdfTEX engine. One can use only TrueType fonts and moreover TTC format is not allowed. (One can use any flavor of OpenType fonts when using dvipdfmx.)
Note: The present package does not support the light-weight Mincho font, and thus the `\setlightminchofont` command does nothing useful.

2.4 Other commands

- `\UTF{`⟨*hexadecimal-number*⟩`}`: Inputs a CJK character through Unicode codepoint value. `\UTF{5B57}` is equivalent to `\Unicode{"5B}{"57}`.
- `\CJKforce{`⟨*character*⟩`...}`: Afterwards treats the characters given in the argument as CJK characters (printed using CJK fonts).
- `\CJKunforce{`⟨*character*⟩`...}`: Cancels the effect of the `\CJKforce` command.
- `\@`⟨*character*⟩: Treats the next character (only that occurrence) as a CJK character, when the character is outside the ASCII range; othersize the standard meaning of `\@` is retained.
- `\CJKecglue`: Inserts a "shibuaki" space. This will be invoked by `~` when `\CJKtilde` is in effect. This command can be redefined by users to adjust the value of shibuaki space, just as `\CJKglue` can be redefined to adjust inter-ideographic space.

  For example:

  ```
  \renewcommand{\CJKecglue}{\hspace{0.125em minus 0.125em}}
  ```

3 Remarks

- The standard font families provided by this package does *not* support vertical writing, even when using default ipaex-type1 font set. However, the families provided by ipaex-type1 (`ipxm` and `ipxg`) do support vertical writing, and one can utilize these families directly by specifying `ipaex-type1` option.