मराठी – LinguisTiX-marathi

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https://ctan.org/pkg/linguistix
https://puszcza.gnu.org.ua/projects/linguistix
https://matrix.to/#/#linguistix:matrix.org

I initialise the package with basic information.

```
⟨*marathi⟩
\ProvidesExplPackage{linguistix-marathi}
                     {2026-04-27}
                     {v0.9b}
                     {मराठी (Marathi)}
```

Average height of Marathi conjuncts could be more than that of Latin letters with descenders. This requires minor adjustments in the baseline stretch. To do it uniformly for footnotes also, I use the setspace package (if not loaded already).

```

\IfPackageLoadedF { setspace } {
  \RequirePackage { setspace }
}
```

We need to set the spacing between lines and words for which I use internal floating point numbers. They are declared here.

```

\fp_gzero_new:N \g_मराठी_शब्दांतील_अंतर_fp
\fp_gzero_new:N \g_मराठी_ओळींतील_अंतर_fp
```

This macro grabs an argument and passes it to the key शब्दांतील अंतर which is used to set the inter-word space for Marathi.

```

\cs_new_protected:Npn \मराठी_शब्दांतील_अंतर:n #1 {
  \lngx_set_keys:n { शब्दांतील~ अंतर = { #1 } }
}

\cs_gset_eq:NN \शब्दांतीलअंतर \मराठी_शब्दांतील_अंतर:n
```

This macro grabs an argument, (g-)sets it as the value of `\g_मराठी_ओळींतील_अंतर_fp` and resets the baseline stretch with `\setstretch` command. If the current class is memoir, then there is a method to do that without any package. I use that.

```
\cs_new_protected:Npn \मराठी_ओळींतील_अंतर:n #1 {
  \fp_gset:Nn \g_मराठी_ओळींतील_अंतर_fp { #1 }
  \IfClassLoadedTF { memoir } {
    \setSingleSpace {
      \fp_use:N \g_मराठी_ओळींतील_अंतर_fp
    }
    \SingleSpacing
  } {
    \setstretch {
      \fp_use:N \g_मराठी_ओळींतील_अंतर_fp
    }
  }
}

\cs_gset_eq:NN \ओळींतीलअंतर \मराठी_ओळींतील_अंतर:n
```

Here I define two keys for adjusting the space between words and lines respectively. Their defaults are also set here.

```
\keys_define:nn { मराठी } {
  शब्दांतील~ अंतर
  .fp_gset:N              = \g_मराठी_शब्दांतील_अंतर_fp,
  शब्दांतील~ अंतर
  .initial:n              = { 1.25 },
  ओळींतील~ अंतर
  .code:n                 = {
    \मराठी_ओळींतील_अंतर:n { #1 }
  }
}
```

The babel package defines `\extrasxxxx` commands for languages where the additional code that should go with a particular language (`xxxx` in this case) is set. The `\addto` command is used for appending to the same. I start with defining additional macros for Marathi.

```
\addto { \extrasmarathi } {
```

I have added the command for using the socket for native numbering. It will pickup its value from the current assignment of the plugs and produce the results accordingly.

```
  \socket_use:n { lngx / native-numbering }
```

By default, LaTeX prints roman numeral (in capital) as part numbers. They are not suitable for Marathi. Thus we change them to be printed with `\lngx_counter:n` instead.

```
  \cs_set:Npn \thepart { \lngx_counter:n { part } }
```

The default LaTeX produces Latin numerals, roman (small and capital both) alphabets and a-z alphabets with enumerate at different levels of nesting. In Marathi, both are irrelevant. Thus I renew all of the concerned commands and change them to print Marathi numbers. Since Marathi doesn't have much variety available for counters, I have chosen a simpler style, i.e. I, I.I, I.I.I and I.I.I.I.

```
  \cs_set:Npn \theenumi { \lngx_counter:n { enumi } }
```

```
\cs_set:Npn \theenumii {
  \lngx_counter:n { enumi } .
  \lngx_counter:n { enumii }
}
```

A period is added after each 'label' in enumerate. In default LaTeX, the label for second level enumeration is printed inside brackets. We don't need it in Marathi. So I change the `\labelenumii` command and add a period. It is not added for the first level because that's LaTeX-default too. Similarly, this is extended to all the other levels.

```
\cs_set:Npn \labelenumii { \theenumii . }
\cs_set:Npn \theenumiii {
  \lngx_counter:n { enumi } .
  \lngx_counter:n { enumii } .
  \lngx_counter:n { enumiii }
}
\cs_set:Npn \labelenumiii { \theenumiii . }
\cs_set:Npn \theenumiv {
  \lngx_counter:n { enumi } .
  \lngx_counter:n { enumii } .
  \lngx_counter:n { enumiii } .
  \lngx_counter:n { enumiv }
}
\cs_set:Npn \labelenumiv { \theenumiv . }
```

The expex package has an independent mechanism of defining and using counters. I define a set called देवनागरी here and make it the default when Marathi is used. Note that this change will go with the `\lngx_misc_reset:` command. Refer to `linguistix.pdf` for more information on this.

```
\IfPackageLoadedT { expex } {
  \definelabeltype { देवनागरी } {
    labelgen                = { list },
    labellist               = {
      अ, आ, इ, ई,
      उ, ऊ, ए, ऐ,
      ओ, औ, अं, अः,
      ॲ, ऋ, ॠ, ऌ, ॡ, ऑ
    },
    labelformat             = {A.},
    fullrefformat           = {XA},
    labelalign              = {left},
    labelwidth              = {1.5em}
  }
  \lingset {
    labeltype               = { देवनागरी }
  }
}
```

Marathi doesn't distinguish between Italic and Upright. So I redefine `\emph` to produce the argument in bold instead. This also goes when `\lngx_misc_reset:` is used.

```
  \cs_gset_eq:NN \emph \textbf
}
```

With the following code, I add the date conversion settings and the parameters to `onchar` command inside `\babelprovide`. This is done only if Marathi is the main language of

the document. I also set the numbering style to `strict`ly native if Marathi is the main language.

```
\tl_if_eq:NnTF \g_lngx_main_language_tl { marathi } {
  \lngx_set_keys:n { native~ numbering = { strict } }
  \babelprovide [
    onchar               = { ids~ fonts },
    date.gregorian /
    date.long            = {
      [d|digits]~ [MMMM],~ [y|digits]
    },
```

We need numbers in words when in frontmatter. They are added in a special counter आकडे and used with a hook for frontmatter. The settings are reset after mainmatter is started.

```
    counters / आकडे =
    एक~ दोन~ तीन~ चार~ पाच~
    सहा~ सात~ आठ~ नऊ~ दहा~
    अकरा~ बारा~ तेरा~ चौदा~ पंधरा~
    सोळा~ सतरा~ अठरा~ एकोणीस~ वीस~
    एकवीस~ बावीस~ तेवीस~ चोवीस~ पंचवीस~
    सव्वीस~ सत्तावीस~ अठ्ठावीस~ एकोणतीस~ तीस~
    एकतीस~ बत्तीस~ तेहतीस~ चौतीस~ पस्तीस~
    छत्तीस~ सदतीस~ अडतीस~ एकोणचाळीस~ चाळीस~
    एकेचाळीस~ बेचाळीस~ त्रेचाळीस~ चव्वेचाळीस~ पंचेचाळीस~
    शेहेचाळीस~ सत्तेचाळीस~ अठ्ठेचाळीस~ एकोणपन्नास~ पन्नास~
    एकावन्न~ बावन्न~ त्रेपन्न~ चौपन्न~ पंचावन्न~
    छप्पन्न~ सत्तावन्न~ अठ्ठावन्न~ एकोणसाठ~ साठ~
    एकसष्ट~ बासष्ट~ त्रेसष्ट~ चौसष्ट~ पासष्ट~
    सहासष्ट~ सदुष्ट~ अडुसष्ट~ एकोणसत्तर~ सत्तर~
    एकाहत्तर~ बाहत्तर~ त्र्याहत्तर~ चौऱ्याहत्तर~ पंचाहत्तर~
    शाहत्तर~ सत्त्याहत्तर~ अठ्ठ्याहत्तर~ एकोणऐंशी~ ऐंशी~
    एक्याऐंशी~ ब्याऐंशी~ त्र्याऐंशी~ चौऱ्याऐंशी~ पंच्याऐंशी~
    श्याऐंशी~ सत्त्याऐंशी~ अठ्ठ्याऐंशी~ एकोणनव्वद~ नव्वद~
    एक्याण्णव~ ब्याण्णव~ त्र्याण्णव~ चौऱ्याण्णव~ पंचाण्णव~
    शहाण्णव~ सत्त्याण्णव~ अठ्ठ्याण्णव~ नव्याण्णव~ शंभर
  ] { marathi }
  \hook_gput_code:nnn { cmd / frontmatter / after } { . } {
    \cs_set:Npn \thepage {
      \localecounter { आकडे } { page }
    }
  }
  \hook_gput_code:nnn { cmd / mainmatter / after } { . } {
    \cs_set:Npn \thepage {
      \marathicounter { page }
    }
  }
```

The `\arraystretch` command needs to be reset to a larger value so that it can incorporate Marathi's vertical conjuncts.

```
  \cs_set:Npn \arraystretch { 1.2 }
```

I have used only the bold and light variant of Mukta for all the fonts. In sans and mono, the width of the New Computer Modern fonts is slightly more, so I use the 'regular'

variant of Mukta there. Otherwise, Mukta-Light is a better match for New Computer Modern Book.

```
\lngx_set_keys:n {
  text~ main~ font         = { Mukta - Light . ttf   },
  text~ sans~ font         = { Mukta - Regular . ttf   },
  text~ mono~ font         = { Mukta - Regular . ttf   }
}
\clist_map_inline:nn {
  upright,
  italic,
  slanted,
  swash
} {
  \lngx_set_keys:n {
    text~ #1               = { Mukta - Light . ttf   },
    text~ bold~ #1         = { Mukta - Bold . ttf    },
    text~ sans~ #1         = { Mukta - Regular . ttf },
    text~ sans~ bold~ #1   = { Mukta - Bold . ttf    },
    text~ mono~ #1         = { Mukta - Regular . ttf },
    text~ mono~ bold~ #1   = { Mukta - Bold . ttf    }
  }
}
```

Using the `text extra features` key, I declare NFSS families called देवनागरी_main, देवनागरी_sans, देवनागरी_mono that will be used later. Also, I use the key for interword-spacing here.

```
\lngx_set_keys:n {
  text~ main~ extra~
  features                 = {
    NFSSFamily               = { देवनागरी_main },
    WordSpace                = {
      \fp_use:N \g_मराठी_शब्दांतील_अंतर_fp
    }
  },
  text~ sans~ extra~
  features                 = {
    NFSSFamily               = { देवनागरी_sans },
    WordSpace                = {
      \fp_use:N \g_मराठी_शब्दांतील_अंतर_fp
    }
  },
  text~ mono~ extra~
  features                 = {
    NFSSFamily               = { देवनागरी_mono },
    WordSpace                = {
      \fp_use:N \g_मराठी_शब्दांतील_अंतर_fp
    }
  }
}
} {
```

In the false branch (i.e., if Marathi is not the main language), I use the macros that set the 'other' (non-main) fonts for Marathi. The fonts are the same, but the key-value interface is not available, so the code is slightly verbose. Before that we load the `onchar`

option with `ids` and `fonts` options.

```
\babelprovide [ onchar     = { ids~ fonts } ] { marathi }
\lngx_other_main_font:nee { marathi } {
  WordSpace                = {
    \fp_use:N \g_मराठी_शब्दांतील_अंतर_fp
  },
  NFSSFamily               = { देवनागरी_main },
  UprightFont              = { Mukta - Light . ttf   },
  ItalicFont               = { Mukta - Light . ttf   },
  BoldFont                 = { Mukta - Bold . ttf    },
  BoldItalicFont           = { Mukta - Bold . ttf    },
  SlantedFont              = { Mukta - Light . ttf   },
  BoldSlantedFont          = { Mukta - Bold . ttf    },
  SwashFont                = { Mukta - Light . ttf   },
  BoldSwashFont            = { Mukta - Bold . ttf    },
  SmallCapsFont            = { Mukta - Light . ttf   }
} { Mukta - Light . ttf }
\lngx_other_sans_font:nee { marathi } {
  WordSpace                = {
    \fp_use:N \g_मराठी_शब्दांतील_अंतर_fp
  },
  NFSSFamily               = { देवनागरी_sans },
  UprightFont              = { Mukta - Regular . ttf },
  ItalicFont               = { Mukta - Regular . ttf },
  BoldFont                 = { Mukta - Bold . ttf    },
  BoldItalicFont           = { Mukta - Bold . ttf    },
  SlantedFont              = { Mukta - Regular . ttf },
  BoldSlantedFont          = { Mukta - Bold . ttf    },
  SwashFont                = { Mukta - Regular . ttf },
  BoldSwashFont            = { Mukta - Bold . ttf    },
  SmallCapsFont            = { Mukta - Regular . ttf }
} { Mukta - Regular . ttf }
\lngx_other_mono_font:nee { marathi } {
  WordSpace                = {
    \fp_use:N \g_मराठी_शब्दांतील_अंतर_fp
  },
  NFSSFamily               = { देवनागरी_mono },
  UprightFont              = { Mukta - Regular . ttf },
  ItalicFont               = { Mukta - Regular . ttf },
  BoldFont                 = { Mukta - Bold . ttf    },
  BoldItalicFont           = { Mukta - Bold . ttf    },
  SlantedFont              = { Mukta - Regular . ttf },
  BoldSlantedFont          = { Mukta - Bold . ttf    },
  SwashFont                = { Mukta - Regular . ttf },
  BoldSwashFont            = { Mukta - Bold . ttf    },
  SmallCapsFont            = { Mukta - Regular . ttf }
} { Mukta - Regular . ttf }
}
```

In order to allow Devanagari in math mode, I use the following code. Since this setting has to be done after the initialisation, I use a hook for lazy loading.

```

\IfPackageLoadedT { lua-unicode-math } {
  \DeclareSymbolFont { देवनागरी }
```

```
                    { TU }
                    { देवनागरी_main }
                    { m }
                    { n }
}

\hook_gput_code:nnn { begindocument / end } { . } {
  \IfPackageLoadedF { lua-unicode-math } {
    \DeclareSymbolFont { देवनागरी }
                       { TU }
                       { देवनागरी_main }
                       { m }
                       { n }
  }
  \int_step_inline:nnn { "0900 } { "097F } {
    \Umathcode #1 = "0 ~ \use:c { symदेवनागरी } ~ #1
  }
}
⟨/marathi⟩
```