

# മലയാളം – LINGUISṬIX-mALAYALAM

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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.

```
1 ⟨*malayalam⟩
2 \ProvidesExplPackage{linguistix-malayalam}
3     {2026-04-24}
4     {v0.9}
5     {മലയാളം (Malayalam)}
```

Average height of Malayalam 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).

```
6
7 \IfPackageLoadedF { setspace } {
8   \RequirePackage { setspace }
9 }
```

We need to set the spacing between lines for which I use an internal floating point number. It is declared here.

```
10
11 \fp_gzero_new:N \g_മലയാളം_വരികൾക്കിടയിലെ_അകലം_fp
```

This macro grabs an argument, (g-)sets it as the value of `\g_മലയാളം_വരികൾക്കിടയിലെ_അകലം_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.

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The LINGUISṬIX bundle

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```

12
13 \cs_new_protected:Npn \മലയാളം_വരികൾക്കിടയിലെ_അകലം:n #1 {
14   \fp_gset:Nn \g_മലയാളം_വരികൾക്കിടയിലെ_അകലം_fp { #1 }
15   \IfClassLoadedTF { memoir } {
16     \setSingleSpace {
17       \fp_use:N \g_മലയാളം_വരികൾക്കിടയിലെ_അകലം_fp
18     }
19     \SingleSpacing
20   } {
21     \setstretch {
22       \fp_use:N \g_മലയാളം_വരികൾക്കിടയിലെ_അകലം_fp
23     }
24   }
25 }
26
27 \cs_gset_eq:NN \വരികൾക്കിടയിലെഅകലം
28           \മലയാളം_വരികൾക്കിടയിലെ_അകലം:n

```

Here I define two keys for adjusting the space between lines.

```

29
30 \keys_define:n { മലയാളം } {
31   വരികൾക്കിടയിലെ~ അകലം
32   .code:n          = {
33     \മലയാളം_വരികൾക്കിടയിലെ_അകലം:n { #1 }
34   },
35   വരികൾക്കിടയിലെ~ അകലം
36   .initial:n       = { 1.2 }
37 }

```

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 Malayalam.

```

38
39 \addto { \extrasmalayalam } {

```

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.

```

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

```

By default,  $\LaTeX$  prints roman numeral (in capital) as part numbers. They are not suitable for Malayalam. Thus we change them to arabic instead.

```

41   \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 Malayalam, both are irrelevant. Thus I renew all of the concerned commands and change them to print

Malayalam numbers. Since Malayalam 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.

```

42 \cs_set:Npn \theenumi { \lngx_counter:n { enumi } }
43 \cs_set:Npn \theenumii {
44   \lngx_counter:n { enumi } .
45   \lngx_counter:n { enumii }
46 }

```

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

```

47 \cs_set:Npn \labelenumii { \theenumii . }
48 \cs_set:Npn \theenumiii {
49   \lngx_counter:n { enumi } .
50   \lngx_counter:n { enumii } .
51   \lngx_counter:n { enumiii }
52 }
53 \cs_set:Npn \labelenumiii { \theenumiii . }
54 \cs_set:Npn \theenumiv {
55   \lngx_counter:n { enumi } .
56   \lngx_counter:n { enumii } .
57   \lngx_counter:n { enumiii } .
58   \lngx_counter:n { enumiv }
59 }
60 \cs_set:Npn \labelenumiv { \theenumiv . }

```

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

```

61 \IfPackageLoadedT { expex } {
62   \definelabeltype { മലയാളം } {
63     labelgen          = { list },
64     labellist         = {
65       ക, ഖ, ഗ, ഘ, ങ,
66       ച, ഛ, ജ, ഝ, ഞ,
67       ട, റ, ഡ, ള, ണ,
68       ത, ഡ, റ, ഡ, ണ,
69       ഫ, ഫ, ഫ, റ, ഡ,
70       റ, റ, റ, റ, റ, റ, റ, റ, റ, റ,
71     },
72     labelformat       = {A.},
73     fullrefformat     = {XA},
74     labelalign        = {left},

```

```

75     labelwidth           = {1.5em}
76   }
77   \lingset {
78     labeltype           = { മലയാളം }
79   }
80 }

```

Malayalam 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.

```

81   \cs_gset_eq:NN \emph \textbf
82 }
83
84 \tl_if_eq:NnTF \g_lngx_main_language_tl { malayalam } {

```

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

```

85   \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.

```

86   \lngx_set_keys:n {
87     text~ main~ font           = { RIT-Rachana-Regular.ttf },
88     text~ sans~ font          = { RIT-MeeraNew.ttf },
89     text~ mono~ font          = { RIT-tnjoy-regular.ttf }
90   }
91   \clist_map_inline:nn {
92     upright,
93     italic,
94     slanted,
95     swash
96   } {
97     \lngx_set_keys:n {
98       text~ #1                 = { RIT-Rachana-Regular.ttf },
99       text~ bold~ #1           = { RIT-Rachana-Bold.ttf },
100      text~ sans~ #1           = { RIT-MeeraNew.ttf },
101      text~ sans~ bold~ #1      = { RIT-MeeraNew.ttf },
102      text~ sans~ bold~ #1~
103      features                  = {
104        FakeBold                = { 1.2 }
105      },
106      text~ mono~ #1           = { RIT-tnjoy-regular.ttf },
107      text~ mono~ bold~ #1      = { RIT-tnjoy-bold.ttf }
108    }
109   }

```

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

```

110 \ltx_set_keys:n {
111   text~ main~ extra~
112   features                = {
113     NFSSFamily            = { മലയാളം_main },
114     Scale                 = { 1.3 }
115   },
116   text~ sans~ extra~
117   features                = {
118     NFSSFamily            = { മലയാളം_sans },
119     Scale                 = { 1.3 }
120   },
121   text~ mono~ extra~
122   features                = {
123     NFSSFamily            = { മലയാളം_mono },
124     Scale                 = { 1.3 }
125   }
126 }
127 } {

```

In the false branch (i.e., if Malayalam is not the main language), I use the macros that set the ‘other’ (non-main) fonts for Malayalam. 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.

```

128 \babelprovide [
129   onchar                  = { ids~ fonts }
130 ] { malayalam }
131 \ltx_other_main_font:nnn { malayalam } {
132   NFSSFamily              = { മലയാളം_main },
133   Scale                   = { 1.3 },
134   UprightFont             = { RIT-Rachana-Regular.ttf },
135   ItalicFont              = { RIT-Rachana-Regular.ttf },
136   BoldFont                = { RIT-Rachana-Bold.ttf   },
137   BoldItalicFont          = { RIT-Rachana-Bold.ttf   },
138   SlantedFont             = { RIT-Rachana-Regular.ttf },
139   BoldSlantedFont         = { RIT-Rachana-Bold.ttf   },
140   SwashFont               = { RIT-Rachana-Regular.ttf },
141   BoldSwashFont           = { RIT-Rachana-Bold.ttf   }
142 } { RIT-Rachana-Regular.ttf }
143 \ltx_other_sans_font:nnn { malayalam } {
144   NFSSFamily              = { മലയാളം_sans },
145   Scale                   = { 1.3 },
146   UprightFont             = { RIT-MeeraNew.ttf },

```

```

147 ItalicFont           = { RIT-MeeraNew.ttf },
148 BoldFont            = { RIT-MeeraNew.ttf },
149 BoldFeatures        = { FakeBold = { 1.2 } },
150 BoldItalicFont      = { RIT-MeeraNew.ttf },
151 BoldItalicFeatures  = { FakeBold = { 1.2 } },
152 SlantedFont         = { RIT-MeeraNew.ttf },
153 BoldSlantedFeatures = { FakeBold = { 1.2 } },
154 BoldSlantedFont     = { RIT-MeeraNew.ttf },
155 SwashFont           = { RIT-MeeraNew.ttf },
156 BoldSwashFont       = { RIT-MeeraNew.ttf },
157 BoldSwashFeatures   = { FakeBold = { 1.2 } }
158 } { RIT-Rachana-Regular.ttf }
159 \lngx_other_mono_font:nnn { malayalam } {
160   NFSSFamily         = { മലയാളം_mono },
161   Scale              = { 1.3 },
162   UprightFont        = { RIT-tnjoy-regular.ttf },
163   ItalicFont         = { RIT-tnjoy-regular.ttf },
164   BoldFont           = { RIT-tnjoy-bold.ttf },
165   BoldItalicFont     = { RIT-tnjoy-bold.ttf },
166   SlantedFont        = { RIT-tnjoy-regular.ttf },
167   BoldSlantedFont    = { RIT-tnjoy-bold.ttf },
168   SwashFont          = { RIT-tnjoy-regular.ttf },
169   BoldSwashFont      = { RIT-tnjoy-bold.ttf }
170 } { RIT-Rachana-Regular.ttf }
171 }

```

In order to allow Malayalam 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.

```

172
173 \IfPackageLoadedT { lua-unicode-math } {
174   \DeclareSymbolFont { മലയാളം }
175                       { TU }
176                       { മലയാളം_main }
177                       { m }
178                       { n }
179 }
180
181 \hook_gput_code:nnn { begindocument / end } { . } {
182   \IfPackageLoadedF { lua-unicode-math } {
183     \DeclareSymbolFont { മലയാളം }
184                         { TU }
185                         { മലയാളം_main }
186                         { m }
187                         { n }
188   }
189   \int_step_inline:nnn { "OD00 } { "OD7F } {

```

```
190     \Umathcode #1 = "0 ~ \use:c { sym000000 } ~ #1
191   }
192 }
193 </malayalam>
```