



The `unitipa` package

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 <https://ctan.org/pkg/unitipa>
 <https://gitlab.com/niranjanvikastambe/unitipa>

This package converts Unicode characters into TIPA commands, which gives us `tipa` typefaces, without actually learning the `tipa` commands in much details. This package needs Lua \LaTeX as the compiler for correctly typesetting the IPA diacritics. TIPA was designed to match with the Computer Modern design, no other IPA font matches with traditional \LaTeX font. This package is helpful for getting the beautiful `tipa` shapes with Unicode characters. This package assumes that the user knows how to type IPA Unicode. Following is the list of symbols that *cannot* be used with the traditional \LaTeX font. Every other symbol in the IPA chart is present in the current \LaTeX font.

Plosives ʈ ɖ ʄ ɠ ʡ

Nasals ŋ ŋ̥ ɳ

Trills ʙ ʀ

Taps or flaps ʋ ɾ ɽ

Fricatives ɸ β θ ʃ ʒ ʂ ʐ ʧ ʥ ʦ ʢ ʡ

Lateral fricatives ɬ ɮ

Approximants ʋ ɹ ɻ ɰ

Lateral approximants ɭ ʎ ʟ

Affricates ʧ ʥ ʦ ʢ

Close vowels ɪ ʉ ʊ

Near-close vowels ɪ ʏ ʊ

Close-mid vowels ɘ ɤ

Open-mid vowels ɛ ɜ ɞ ʌ ɔ

Near-open vowels ɐ ɶ ɔ

Clicks ǀ ǁ ǂ ǃ

Voiced Implosives ɓ ɗ ɟ ɠ

Ejective ʼ

Suprasegmentals ' , : ·

Other symbols ɯ ɥ ɦ ʧ ʨ ɕ ʐ ɺ ɻ

Dependent diacritics ͡ ͢ ͣ ͤ ͥ ͦ ͧ ͨ ͩ ͪ ͫ ͬ ͭ ͮ ͯ Ͱ ͱ Ͳ ͳ ʹ ͵ Ͷ ͷ ͸ ͹ ͺ ͻ ͼ ͽ Ϳ

Independent diacritics ˀ ˁ ˂ ˃ ˄ ˅ ˆ ˇ ˈ ˉ ˊ ˋ ˌ ˍ ˎ ˏ ː ˑ ˒ ˓ ˔ ˕ ˖ ˗ ˘ ˙ ˚ ˛ ˜ ˝

Tie bars ͠ ͡ ͢ ͣ ͤ ͥ ͦ ͧ ͨ ͩ ͪ ͫ ͬ ͭ ͮ ͯ

Tones ˥ ˦ ˧ ˨ ˩ ˪ ˫ ˬ ˭ ˮ ˯ ˰ ˱ ˲ ˳ ˴ ˵ ˶ ˷ ˸ ˹

1 Package options

nodiacritics

If you are very sure that you don't need any IPA diacritics in your document, you can load the package with this option. If this option is loaded, package can be compiled with other compilers too, but no IPA diacritic will be printed.

ipafont

`ipafont=`

IPA character [v̥] is not available in `tipa`, but for the convenience of users, this character is coded with Doulos SIL as it seemed to me the closest match to `tipa` typeface. If you don't have this font, please install package [doulosil](#) or download the font from [here](#). If users want to change the font used for this character, they can simply add the font name as the value to this option.

2 Implementation

```
1 <@=unitipa>
2 <*package>
3 \ProvidesPackage{unitipa}[18/09/2020 v0.1
4 TIPA typefaces with unicode characters]
5 \RequirePackage{tipa}
```

Provide package with its basic information and load package `tipa`.

```
6 \RequirePackage{graphicx}
```

Package `graphicx` is needed for printing [3] correctly. See line no. 295.

```
7 \RequirePackage{newunicodechar}
8 \RequirePackage{fontspec}
9 \RequirePackage{pgfkeys}
10 \pgfkeys{
11   unitipa/.is family, unitipa/.cd,
12   ipafont/.code={\setfontfamily{\ipa}{#1}},
13   ipafont=DoulosSIL,
14 }
15 \DeclareTextFontCommand{\ipatext}{\ipa}
16 \def\unitipa@ipafont#1{\pgfkeys{unitipa/.cd,#1}}
17 \DeclareOption*{\expandafter\unitipa@ipafont\expandafter{\CurrentOption}}
```

Option `ipafont` provided using `pgfkeys`.

```
18 \newif\ifnodiacritics
```

```

19 \nodiacriticfalse
20 \DeclareOption{nodiacritics}{\nodiacriticstrue}
21 \ProcessOptions\relax
22 \ifnodiacritics
23 \relax
24 \else
25 \RequirePackage{iftex}
26 \RequirePackage{luacode}
27 \RequireLuaTeX
28 %% Dependent diacritic marks
29 \begin{luacode}
30   function voiceless ( s )
31     s = unicode.utf8.gsub ( s , '(%a)', '\\textsubring{%1}' )
32     return s
33   end
34 \end{luacode}
35 \directlua{luatexbase.add_to_callback("process_input_buffer",
36   voiceless, "voiceless")}
37 \begin{luacode}
38   function voiced ( s )
39     s = unicode.utf8.gsub ( s , '(%a)', '\\textsubwedge{%1}' )
40     return s
41   end
42 \end{luacode}
43 \directlua{luatexbase.add_to_callback("process_input_buffer",
44   voiced, "voiced")}
45 \begin{luacode}
46   function morerounded ( s )
47     s = unicode.utf8.gsub ( s , '(%a)', '\\textsubrhalfring{%1}' )
48     return s
49   end
50 \end{luacode}
51 \directlua{luatexbase.add_to_callback("process_input_buffer",
52   morerounded, "morerounded")}
53 \begin{luacode}
54   function lessrounded ( s )
55     s = unicode.utf8.gsub ( s , '(%a)', '\\textsublhalfring{%1}' )
56     return s
57   end
58 \end{luacode}
59 \directlua{luatexbase.add_to_callback("process_input_buffer",
60   lessrounded, "lessrounded")}
61 \begin{luacode}
62   function advanced ( s )
63     s = unicode.utf8.gsub ( s , '(%a)', '\\textsubplus{%1}' )
64     return s
65   end
66 \end{luacode}
67 \directlua{luatexbase.add_to_callback("process_input_buffer",
68   advanced, "advanced")}
69 \begin{luacode}
70   function retracted ( s )
71     s = unicode.utf8.gsub ( s , '(%a)', '\\textsubbar{%1}' )
72     return s

```

```

73     end
74 \end{luacode}
75 \directlua{luatexbase.add_to_callback("process_input_buffer",
76     retracted, "retracted")}
77 \begin{luacode}
78     function midcentralized ( s )
79         s = unicode.utf8.gsub ( s , '%a' , '\\textovercross{%1}' )
80         return s
81     end
82 \end{luacode}
83 \directlua{luatexbase.add_to_callback("process_input_buffer",
84     midcentralized, "midcentralized")}
85 \begin{luacode}
86     function syllabic ( s )
87         s = unicode.utf8.gsub ( s , '%a' , '\\textsyllabic{%1}' )
88         return s
89     end
90 \end{luacode}
91 \directlua{luatexbase.add_to_callback("process_input_buffer",
92     syllabic, "syllabic")}
93 \begin{luacode}
94     function nonsyllabic ( s )
95         s = unicode.utf8.gsub ( s , '%a' , '\\textsubarch{%1}' )
96         return s
97     end
98 \end{luacode}
99 \directlua{luatexbase.add_to_callback("process_input_buffer",
100     nonsyllabic, "nonsyllabic")}
101 \begin{luacode}
102     function breathyvoiced ( s )
103         s = unicode.utf8.gsub ( s , '%a' , '\\textsubumlaut{%1}' )
104         return s
105     end
106 \end{luacode}
107 \directlua{luatexbase.add_to_callback("process_input_buffer",
108     breathyvoiced, "breathyvoiced")}
109 \begin{luacode}
110     function linguolabial ( s )
111         s = unicode.utf8.gsub ( s , '%a' , '\\textseagull{%1}' )
112         return s
113     end
114 \end{luacode}
115 \directlua{luatexbase.add_to_callback("process_input_buffer",
116     linguolabial, "linguolabial")}
117 \begin{luacode}
118     function velarized ( s )
119         s = unicode.utf8.gsub ( s , '%a' , '\\textsuperimposetilde{%1}' )
120         return s
121     end
122 \end{luacode}
123 \directlua{luatexbase.add_to_callback("process_input_buffer",
124     velarized, "velarized")}
125 \begin{luacode}
126     function raised ( s )

```

```

127     s = unicode.utf8.gsub ( s , '%a' , '\\textraising{%1}' )
128     return s
129     end
130 \end{luacode}
131 \directlua{luatexbase.add_to_callback("process_input_buffer",
132     raised, "raised")}
133 \begin{luacode}
134     function lowered ( s )
135     s = unicode.utf8.gsub ( s , '%a' , '\\textlowering{%1}' )
136     return s
137     end
138 \end{luacode}
139 \directlua{luatexbase.add_to_callback("process_input_buffer",
140     lowered, "lowered")}
141 \begin{luacode}
142     function advancedtr ( s )
143     s = unicode.utf8.gsub ( s , '%a' , '\\textadvancing{%1}' )
144     return s
145     end
146 \end{luacode}
147 \directlua{luatexbase.add_to_callback("process_input_buffer",
148     advancedtr, "advancedtr")}
149 \begin{luacode}
150     function retractedtr ( s )
151     s = unicode.utf8.gsub ( s , '%a' , '\\textretracting{%1}' )
152     return s
153     end
154 \end{luacode}
155 \directlua{luatexbase.add_to_callback("process_input_buffer",
156     retractedtr, "retractedtr")}
157 \begin{luacode}
158     function dental ( s )
159     s = unicode.utf8.gsub ( s , '%a' , '\\textsubbridge{%1}' )
160     return s
161     end
162 \end{luacode}
163 \directlua{luatexbase.add_to_callback("process_input_buffer",
164     dental, "dental")}
165 \begin{luacode}
166     function apical ( s )
167     s = unicode.utf8.gsub ( s , '%a' , '\\textinvsbridge{%1}' )
168     return s
169     end
170 \end{luacode}
171 \directlua{luatexbase.add_to_callback("process_input_buffer",
172     apical, "apical")}
173 \begin{luacode}
174     function laminal ( s )
175     s = unicode.utf8.gsub ( s , '%a' , '\\textsubsquare{%1}' )
176     return s
177     end
178 \end{luacode}
179 \directlua{luatexbase.add_to_callback("process_input_buffer",
180     laminal, "laminal")}

```

```

181 \begin{luacode}
182     function unaudible ( s )
183         s = unicode.utf8.gsub ( s , '%a' , '%1\\textcorner' )
184         return s
185     end
186 \end{luacode}
187 \directlua{luatexbase.add_to_callback("process_input_buffer",
188     unaudible, "unaudible")}
189 %% Tie bars
190 \begin{luacode}
191     function tiebarup ( s )
192         s = unicode.utf8.gsub ( s , '%a (%a)' , '\\texttoptiebar{%1%2}' )
193         return s
194     end
195 \end{luacode}
196 \directlua{luatexbase.add_to_callback("process_input_buffer",
197     tiebarup, "tiebarup")}
198 \begin{luacode}
199     function tiebardown ( s )
200         s = unicode.utf8.gsub ( s , '%a (%a)' , '\\textbottomtiebar{%1%2}' )
201         return s
202     end
203 \end{luacode}
204 \directlua{luatexbase.add_to_callback("process_input_buffer",
205     tiebardown, "tiebardown")}
206 \begin{luacode}
207     function risefall ( s )
208         s = unicode.utf8.gsub ( s , '%a' , '\\textrisefall{%1}' )
209         return s
210     end
211 \end{luacode}
212 \directlua{luatexbase.add_to_callback("process_input_buffer",
213     risefall, "risefall")}
214 \begin{luacode}
215     function rising ( s )
216         s = unicode.utf8.gsub ( s , '%a' , '\\texthighrise{%1}' )
217         return s
218     end
219 \end{luacode}
220 \directlua{luatexbase.add_to_callback("process_input_buffer",
221     rising, "rising")}
222 \begin{luacode}
223     function falling ( s )
224         s = unicode.utf8.gsub ( s , '%a' , '\\textlowrise{%1}' )
225         return s
226     end
227 \end{luacode}
228 \directlua{luatexbase.add_to_callback("process_input_buffer",
229     falling, "falling")}
230 \fi

```

Option `nodiacritics` provided for using the package without Lua \LaTeX . Enabling this option won't print any diacritics. Help from Samcarter and Mico Loretan on different

platforms¹ gave a right direction to this code.

```
231 %% Pulmonic Consonants
232 %% Plosives
233 \newunicodechar{t}{\texttrtailt}
234 \newunicodechar{d}{\texttrtaild}
235 \newunicodechar{j}{\textbardotlessj}
236 \newunicodechar{G}{\textscg}
237 \newunicodechar{ʔ}{\textglotstop}
238 %% Nasals
239 \newunicodechar{ŋ}{\textltailm}
240 \newunicodechar{ɲ}{\textrtailn}
241 \newunicodechar{N}{\textscn}
242 %% Trills
243 \newunicodechar{B}{\textscb}
244 \newunicodechar{R}{\textscr}
245 %% Taps or flaps
246 \newunicodechar{v}{\ipatext{v}} %% Sorry for the bad typography!
247 \newunicodechar{ɾ}{\textfishhookr}
248 \newunicodechar{ɽ}{\textrtailr}
249 %% Fricatives
250 \newunicodechar{ɸ}{\textphi}
251 \newunicodechar{β}{\textbeta}
252 \newunicodechar{θ}{\texttheta}
253 \newunicodechar{ʃ}{\textesh}
254 \newunicodechar{ʒ}{\textyogh}
255 \newunicodechar{ʂ}{\textrtails}
256 \newunicodechar{ʐ}{\textrtailz}
257 \newunicodechar{ç}{\textctj}
258 \newunicodechar{ɣ}{\textgamma}
259 \newunicodechar{χ}{\textchi}
260 \newunicodechar{ɸ}{\textinvscr}
261 \newunicodechar{ʃ}{\textrevglotstop}
262 \newunicodechar{h̥}{\texthth}
263 %% Lateral fricatives
264 \newunicodechar{ɬ}{\textbeltl}
265 \newunicodechar{ɮ}{\textlyoghlig}
266 %% Approximants
267 \newunicodechar{ʋ}{\textscriptv}
268 \newunicodechar{ɹ}{\textturnr}
269 \newunicodechar{ɻ}{\textturnrrtail}
270 \newunicodechar{ɰ}{\textturnmrleg}
271 %% Lateral approximants
272 \newunicodechar{l̥}{\textrtail}
273 \newunicodechar{ɭ}{\textturny}
274 \newunicodechar{ɮ}{\textsc}
275 %% Affricates
276 \newunicodechar{tʃ}{\texttेशlig}
277 \newunicodechar{dʒ}{\textdyoghlig}
278 \newunicodechar{ts}{\textttslig}
279 \newunicodechar{dʒ}{\textdzlig}
280 %% Vowels
281 %% Close
```

¹Samcarter's [answer](#) on TopAnswer & Mico Loretan's [answer](#) on TeX.SE.

```

282 \newunicodechar{i}{\textbari}
283 \newunicodechar{u}{\textbaru}
284 \newunicodechar{u}{\textturnm}
285 %% Near-close
286 \newunicodechar{i}{\textsci}
287 \newunicodechar{y}{\textscy}
288 \newunicodechar{u}{\textupsilon}
289 %% Close-mid
290 \newunicodechar{ø}{\textbaro}
291 \newunicodechar{y}{\textramshorns}
292 %% Open-mid
293 \newunicodechar{ɛ}{\textepsilon}
294 \newunicodechar{ɜ}{\textrevepsilon}
295 \newunicodechar{ɞ}{\reflectbox{\textcloseepsilon}} %% Latest changes
296 \newunicodechar{ʌ}{\textturnv}
297 \newunicodechar{o}{\textopeno}
298 %% Near-open
299 \newunicodechar{v}{\textturna}
300 \newunicodechar{æ}{\textscelig}
301 \newunicodechar{ɔ̃}{\textturnscripta}
302 %% Non-Pulmonic
303 \newunicodechar{O}{\textbullseye}
304 \newunicodechar{|}{\textpipe}
305 \newunicodechar{!}{\textipa{!}}
306 \newunicodechar{#}{\textdoublebarpipe}
307 \newunicodechar{||}{\textdoublepipe}
308 %% Voiced Implosives
309 \newunicodechar{ɓ}{\texthtb}
310 \newunicodechar{ɗ}{\texthtd}
311 \newunicodechar{ɟ}{\texthtbardotlessj}
312 \newunicodechar{ɠ}{\texthtg}
313 \newunicodechar{ɣ}{\texthtscg}
314 \newunicodechar{'}{'}
315 %% Suprasegmentals
316 \newunicodechar{ˈ}{\textprimstress}
317 \newunicodechar{ˌ}{\textsecstress}
318 \newunicodechar{:}{\textlengthmark}
319 \newunicodechar{ˑ}{\texthalflength}
320 \newunicodechar{᳚}{\textturnw}
321 \newunicodechar{᳚}{\textturnh}
322 \newunicodechar{᳚}{\textsch}
323 \newunicodechar{᳚}{\textbarrevglotstop}
324 \newunicodechar{᳚}{\textbarglotstop}
325 \newunicodechar{᳚}{\textctc}
326 \newunicodechar{᳚}{\textctz}
327 \newunicodechar{᳚}{\textturnlonglegr}
328 \newunicodechar{᳚}{\texththeng}
329 %% Diacritics
330 \newunicodechar{h}{\textsuperscript{h}}
331 \newunicodechar{h̃}{\textsuperscript{h̃}}
332 \newunicodechar{w}{\textsuperscript{w}}
333 \newunicodechar{j}{\textsuperscript{j}}
334 \newunicodechar{y}{\textsuperscript{y}}
335 \newunicodechar{ʃ}{\textsuperscript{ʃ}}

```



```
336 %% Tones independent diacritics
337 \newunicodechar{↓}{\textdownstep}
338 \newunicodechar{↑}{\textupstep}
339 %% \newunicodechar{}{\textglobrise} %% Not working :'(
340 %% \newunicodechar{}{\textglobfall} %% Need help here
341 \end{package}
```