

# The latex-lab-footnotes code\*

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June 8, 2022

## Abstract

*to be written*

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# 1 Introduction

This code reimplements the footnote interfaces for L<sup>A</sup>T<sub>E</sub>X offering configurable methods for layout and functionality adjustments that avoid overwriting each other when used in classes as well as in packages (as far as possible — obviously some adjustments are mutually exclusive). This is achieved by providing a larger number of hooks (for areas where different packages/classes can easily coexist with their adjustments) and a number of configuration points to which only one class or package can write to successfully (in case of multiple changes the last one wins). The latter are for special functionality, e.g., if footnote text is typeset as a single paragraph, it can't be configured the same time to be typeset vertically with one footnote below each other.

The interfaces are set up to support tagged PDF, but in order for this to work, all packages altering the footnote setup should use the interfaces provided here and not do it through the legacy methods (though there is some support for the latter as well, but it will not work in a cases).

## 1.1 Configuration methods

Historically, the footnote setup in L<sup>A</sup>T<sub>E</sub>X was done by providing definitions for `\@makefnmark` (format the footnote mark in running text and in front of the footnote text) and `\@makefntext` (formatting the footnote text and placing a mark in front of it).

There was a default definition for `\@makefnmark` in the format that was used by most document classes, but `\@makefntext` had to be defined in the class itself because the format didn't provide a default. As a result you will find definitions for the latter in all document classes and definitions for `\@makefnmark` only in very few.

Furthermore, to enable special footnote layouts or provide additional functionality a few packages (and a few classes) overwrote other internal commands of L<sup>A</sup>T<sub>E</sub>X's footnote mechanism. The commands affected in this way are mainly `\@footnotemark` and `\@footnotetext`. These overwrites could not be used in combination, so either the packages/classes had to be aware of being loaded together (which they sometimes did or tried to) or they would fail by overwriting each other unconditionally.

The present rewrite is an attempt to improve this situation, but of course, it will only work if all packages/classes make use of the new interfaces. Fortunately, the number of problematical packages altering these internal commands are fairly small so arranging for updates is a realistic goal — to achieve properly tagged PDF it is a requirement.

## 2 Hooks and configuration points

Note: the configuration points do not have an interface mechanism yet and all their names are temporary right now. Also note that configuration points are of interest only to very few specialized packages, mainly `footmisc`, and packages providing similar functionality—the current documentation is therefore fairly sketchy.

In contrast the hooks are of interest to many classes to provide their layout alterations in a way that it works smoothly with other packages handling aspects of footnote formatting.

## 2.1 Formatting the mark in the main text

This implements formatting the mark<sup>1</sup> and its relation to surrounding text, e.g., if several marks appear in the same place, etc.

### 2.1.1 Configuration points

None: everything is implemented through a single definition for `\@footnotemark` that offers a number of hooks that can be used by packages to implement handling of multiple marks and the formatting of marks.

### 2.1.2 Hooks

The hooks to customize the marks in the text are the following:

**fnmark/before** Executed at the very beginning of `\footnotemark`. Currently there are two packages (`bibarts` and `chextras`) that prepend material at this point (not necessarily correctly, e.g., they do not all check that they are in horizontal mode).

This hook is paired with hook `fnmark/after`.

**fnmark** Executed in horizontal mode and after the current space factor has been saved away for reuse. This is where currently code for multiple marks does its preparation (as done by `footmisc` and others).

The hook is only executed in hmode, i.e., not if the mark is generated in math — maybe that means the multiple handling should happen later?

After the hook `\nobreak` is executed, so any “material” added in the hook is tied to the following mark unless it contains its own permissible penalty.

**fnmark/begin** This hook is executed directly in front of the typeset mark. This is the place where `hyperref` adds part of its code, i.e., after the `\nobreak` mentioned above. With a closer integration of `hyperref` this hook may not be necessary at all.

**fnmark/end** This hook is executed directly after the typeset mark. It is used by `hyperref`, `memhfixc`, `scrlttr2`, and `footmisc`. Used, for example, to implement support for multiple marks in succession.

It is *not* a reversed hook.

**fnmark/after** This hook is executed at the very end of the `\footnotemark` command.

It is a reversed hook to pair with `fnmark/before`

### 2.1.3 Additional configuration possibilities

The actual formatting is done through `\@makefnmark` — no special customization support for now.

## 2.2 Formatting the footnote text

This implements the formatting of the footnote text the way it appears at the bottom of the page (default case), or possibly elsewhere, e.g. in the margin.

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<sup>1</sup>Like this one.

### 2.2.1 Configuration points

To cater for different layout configurations there are four configuration points which can be set only by one package or class, if two packages/classes set them they are mutually incompatible. These are:

`\@footnotetext@cfgpoint` (**1 argument**) This receives all material that is to be processed (or stored) including color protection code and what have you. The default definition is to run `\insert\footins`.

`\@footnotetext@cfgpointii` (**1 argument**) The default definition runs `\@makefnstext` which contains various hooks for customization. For most scenarios this is sufficient. However, when running all footnotes as a single paragraph at the bottom, then each footnote needs to be prepared prior to storing in the insert and this configuration point allows running extra code to do that.

`\@footnotetext@cfgpointiii` (**no argument**) By default this configuration point adds a strut to the footnote material. so that consecutive footnotes are properly spaced vertically. In some use cases this is not appropriate (e.g., when running all footnotes s a single paragraph) and so this configuration point can cancel the action or do something else instead.

The configuration point is executed near the start of the argument for the configuration point `\@footnotetext@cfgpointii`.

`\@footnotetext@cfgpointiv` (**no argument**) This configuration point is executed at the very end of the argument passed to `\@footnotetext@cfgpointii`. By default it adds a final strut as long as we are still in horizontal mode (i.e., processing the footnote text paragraph. When running several footnotes in one paragraph some additional material (some horizontal glue) needs adding at this point.

The configuration point `\@footnotetext@cfgpointii` runs `\@makefnstext` and this command contains two further configuration points (and a few hooks):

`\@makefnstext@cfgpoint` (**1 argument**) This configuration point receives the material to typeset the footnote mark. By default, all it does is running `\indent` to get a paragraph indentation (if one is set up—in most layouts it is 0 points) and then typesets the mark, but in some designs it executes more elaborate code.

If tagging is produced this configuration point is also responsible for surrounding the mark with the appropriate tags marking the mark as an Lbl. It does this using the command `\tag@FELbl`.

`\@makefnstext@cfgpointii` (**1 argument**) This configuration point manages the formatting of the footnote text once the mark has been typeset.

If tagging is produced this configuration point is also responsible for surrounding the mark with the appropriate tags marking the mark as an MC of type FENote. It does this using the command `\tag@FENote`.

The above configuration points are sufficient to implement all commonly used footnote layouts assuming L-R typesetting. For R-L typesetting they or may or may not need some extension (though that is not clear right now).

### 2.2.2 Hooks

**fn`text`/before** Executed at the very beginning of `\footnotetext`. Currently there is on package (`linguex`) that prepends material at this point.

This hook is paired with hook `fnmark/after`.

**fn`text`** Executed at the beginning of the material passed to the first configuration point. Typically used to set any baseline stretch for the footnote text, e.g., by `setspace`, `footmisc`, `uathesis.cls` and others. Could be done in a later hook but is a bit more efficient here.

After the hook has run, the font is established, i.e., it can't be used to set a different font size.

**fn`text`/para** After the font is set default paragraph parameters are set up including `\interlinepenalty`, `\hsize`, `\parindent` and a number of others, as some of them depend on the font size. Then the `fntext/para` is run. If one wants to change the font size, it is probably necessary to reset these other parameters too, e.g., `\parindent`, which can be done here.

The configuration point `\@footnotetext@cfgpointii` normally runs the command `\@makefntext` or some code that eventually runs this command, and this then produces the footnote mark (in front of the footnote text) and the formatted footnote text. In front of both the mark and the footnote text some classes have placed paragraph parameter adjustments in their redefinition of `\@makefntext`. However, there is no need to place it there it could equally well go into the `fntext/para` hook. We therefore do not provide another hook at this point.

**fn`text`/begin & fn`text`/end** The footnote text itself is surrounded by the hooks `fntext/begin` and `fntext/end`. The two hooks are not paired as they are typically used independently.

**fn`text`/after** At the very end of `\footnotetext` we execute the hook `fntext/after` which is a reversed hook paired with `fntext/before`. Some packages, e.g., `linuex`, have code in that position.

### 2.2.3 Additional configuration possibilities

The formatting of the footnote mark in front of the footnote texts is influenced by the setting of the `dimen` parameter `\footnotemargin`. By default its value is 1.8em in the current text font (or `-\maxdimen` when the `para` option is chosen). The following rules apply:

- If it has the value `-\maxdimen` then the mark is generated by `\@makefnmark`.
- Otherwise, if the value is negative then the mark is placed into an `\llap` left aligned in a box of size `-\footnotemargin`.
- If the value is zero an `\llap` is used without an inner box.
- If the value is greater zero (but less than `\maxdimen`) the mark is placed right aligned into a box of size `\footnotemargin`.
- The value `\maxdimen` is used as a marker to indicate that no value was given and that the default should be used, i.e. 1.8em or `-\maxdimen` depending on the chosen option.

### 3 Tagging support

*To be documented*

### 4 The Implementation

All this is very rough and misses a lot of documentation.

```
1 <*kernel>
2 <@@=fnote>
```

#### 4.1 File declaration

```
3 \ProvidesFile{latex-lab-footnotes.ltx}
4     [2022-03-10 v0.6a changes to the footnote interfaces]
5
6 % latex.ltx
7
8     % not looked at yet
9
10 \long\def\@mpfootnotetext#1{%
11     \global\setbox\@mpfootins\vbox{%
12         \unvbox\@mpfootins
13         \reset@font\footnotesize
14         \hsize\columnwidth
15         \@parboxrestore
16         \def\@currentcounter{mpfootnote}%
17         \protected@edef\@currentlabel
18             {\csname p@mpfootnote\endcsname\@thefnmark}%
19         \color@begingroup
20             \@makefnmark{%
21                 \rule{z@{footnotesep}\ignorespaces#1\@finalstrut\strutbox}%
22             \par
23             \color@endgroup}}
24
25
26 \def\@makefnmark{\hbox{\@textsuperscript{\normalfont\@thefnmark}}}
27
28
29
30 \def\@mpfn{footnote}
31 \def\thempfn{\thefootnote}
32
33
34
35 %-----
36
37
38 \ExplSyntaxOn
39
40
41 \cs_new_protected:Npn \fnote_step_fnmark:nn #1#2 {
42     \tl_if_novalue:nTF {#1}
```

```

43   {
44     \stepcounter {#2}
45     \protected@xdef \@thefnmark { \use:c { the#2 } }
46   }
47   {
48     \group_begin:

```

Note that this is a local assignment even though L<sup>A</sup>T<sub>E</sub>X counters are normally globally changed. This is the way it was in 2e and so far we haven't changed it. The alternative would be to store the current value and restore it after \@thefnmark is altered.

```

49     \int_set:cn { c@#2 }{ #1 }
50     \unrestored@protected@xdef \@thefnmark { \use:c { the#2 } }
51   \group_end:
52 }
53 }
54
55 \cs_new_protected:Npn \fnote_set_fnmark:nn #1#2 {
56   \tl_if_novalue:nTF {#1}
57   {
58     \protected@xdef \@thefnmark { \use:c { the#2 } }
59   }
60   {
61     \group_begin:
62       \int_set:cn { c@#2 }{ #1 }
63       \unrestored@protected@xdef \@thefnmark { \use:c { the#2 } }
64     \group_end:
65   }
66 }
67
68 %-----
69
70 % the debugging code is just temp
71 \bool_new:N \g_fnote_debug_bool
72 \bool_gset_true:N \g_fnote_debug_bool   % for now we have debugging turned on by default
73
74 %-----
75
76
77
78 \NewMirroredHookPair{fnmark/before}{fnmark/after}
79 \NewHook{fnmark}
80 \NewHook{fnmark/begin}
81 \NewHook{fnmark/end}
82
83
84 \cs_new:Npn \__fnote_debug_footnotemark: {
85   \bool_if:NT \g_fnote_debug_bool
86   {
87     \LogHook{fnmark/before}
88     \LogHook{fnmark}
89     \LogHook{fnmark/begin}
90     \LogHook{fnmark/end}
91     \LogHook{fnmark/after}
92     \cs_gset_eq:NN \__fnote_debug_footnotemark: \prg_do_nothing:

```

```

93     }
94 }
95
96
97 \cs_new_protected:Npn \fnote_footnotemark: {
98   \__fnote_debug_footnotemark:
99   %-----
100  % bibarts
101  % chextras --- actually in the wrong place does an \unskip
102  \UseHook{fnmark/before}
103  %-----
104  \leavevmode
105  \ifhmode
106  \edef\@x@sf{\the\spacefactor}
107  %-----
108  % bxjsja-minimal.def --- what they do could be done at ‘bibarts’
109  % (a bit less efficient)
110  % memhfixc.sty
111  % footmisc.sty
112  \UseHook{fnmark}
113  %-----
114  \nobreak
115  \fi
116  %-----
117  % hyperref.sty
118  \UseHook{fnmark/begin}
119  %-----
120  \@kernel@process@makefnmark
121  \@makefnmark
122  %-----

```

If a footnote mark is placed by its own then it should finish by executing `fnmark/end`, resetting the space factor, and finishing with `fnmark/after`. However, in a complete footnote these actions have to happen only after we have handled the footnote text (e.g., by placing it into an `\insert`). In such a situation `\__fnote_footmark_finish:` below does nothing and the action is carried out later.

```

123   \__fnote_footnotemark_finish:
124 }
125
126
127 \cs_new:Npn \__fnote_finish: {
128 % hyperref.sty
129 % memhfixc.sty --- could move fnmark/after
130 % scr1ttr2.cls --- could vanish if footmisc uses a hook
131 % footmisc.sty
132 \UseHook{fnmark/end}
133 %-----
134 \ifhmode
135   \spacefactor \@x@sf \relax
136 \fi
137 %
138 %-----
139 \UseHook{fnmark/after}
140 %-----

```



```

141 }
142
143
144 \cs_new_eq:NN \_fnote_footnotemark_finish: \_fnote_finish:
145
146
147
148 % Not a public config point but the kernel hook to add tagging
149 \def \@kernel@process@makefnmark { }
150
151
152 % alterations not covered:
153 %
154 % ./arabtex/afoot.sty --- too different (and probably too old)
155
156
157 % Provide the name \LaTeXe{} is used to.
158
159 \cs_set_eq:NN \@footnotemark \fnote_footnotemark:
160
161
162
163 %-----
164
165 \NewMirroredHookPair{fntext/before}{fntext/after}
166 \NewHook{fntext}
167 \NewHook{fntext/para}
168 \NewHook{fntext/begin}
169 \NewHook{fntext/end}
170
171
172 \cs_new:Npn \_fnote_debug_footnotetext: {
173   \bool_if:NT \g_fnote_debug_bool
174     {
175       \cs_log:N\@footnotetext@cfgpoint
176       \cs_log:N\@footnotetext@cfgpointii
177       \cs_log:N\@footnotetext@cfgpointiii
178       \cs_log:N\@footnotetext@cfgpointiv
179       \cs_log:N\@makefntext@cfgpoint
180       \cs_log:N\@makefntext@cfgpointii
181       \LogHook{fntext/before}
182       \LogHook{fntext}
183       \LogHook{fntext/para}
184       \LogHook{fntext/begin}
185       \LogHook{fntext/end}
186       \LogHook{fntext/after}
187
188       \cs_gset_eq:NN \_fnote_debug_footnotetext: \prg_do_nothing:
189     }
190
191 \cs_new_protected:Npn \fnote_footnotetext:n #1 {
192   \_fnote_debug_footnotetext:
193   %-----

```

```

194 % ./linguex/linguex.sty
195 \UseHook{fntext/before}
196 %-----
197 \@kernel@process@footnotetext
198 \@footnotetext@cfgpoint { % config point
199 %-----
200 % resetting baselinestretch ... (could be done further down)
201 % ./uafthesis/uafthesis.cls
202 % ./setspace/setspace.sty
203 % ./footmisc/footmisc.sty (normal)
204 \UseHook{fntext}
205 %-----
206 \reset@font
207 \footnotesize
208 %-----
209 % some classes use a different font size, e.g.,
210 % ./nrc/nrc1.cls ./nrc/nrc2.cls
211 % but those could be done in fntext/para instead
212 %-----

```

In case of sidenotes the next settings are pointless, but as they do not hurt (except for the `\hsize` setting) and are needed for all other cases we make them here and overwrite them for side notes

```

213 \interlinepenalty\interfootnotelinepenalty
214 \splittopskip\footnotesep
215 \splitmaxdepth \dp\strutbox
216 \floatingpenalty \@MM
217 \hsize\columnwidth
218 \@parboxrestore
219 \parindent 1em % typical default used in \@makefntext moved up here
220 \def\@currentcounter{footnote}
221 \protected@edef \@currentlabel { \p@footnote \@thefnmark }
222 %-----
223 % for altering para parameters ...
224 % code for resphilosophica came earlier but it could go here.
225 % Has the advantage that one can also overwrite \cs{@currentcounter}
226 % and \cs{@currentlabel} is that is necessary.
227 %
228 % ./resphilosophica/resphilosophica.cls
229 \UseHook{fntext/para}
230 %-----
231 \color@begingroup
232 %-----
233 % fnpara wants to replace \@makefntext{...} and para and side option of footmisc etc too ...
234 % so we make this a config point
235 %-----
236 \@footnotetext@cfgpointii % config point
237 {
238 %-----
239 % ./resphilosophica/resphilosophica.cls
240 %-----
241 \@footnotetext@cfgpointiii % config point
242 %-----
243 % bibarts
244 % fnbreak.sty

```

```

245         \UseHook{fntext/begin}
246 %-----
247         \ignorespaces
248         #1
249 %-----
250 % bibarts
251 % fbreak.sty
252         \UseHook{fntext/end}
253 %-----
254         \@footnotetext@cfgpointiv % config point
255     }
256     \par
257     \color@endgroup
258 }
259 %-----
260 % ./linguex/linguex.sty
261 \UseHook{fntext/after}
262 %-----
263 }
264
265 % default for config point (1 arg)
266 \cs_new_protected:Npn \@footnotetext@cfgpoint { \insert\footins }
267
268 % default for config point (1 arg)
269 \cs_new_protected:Npn \@footnotetext@cfgpointii { \@makefntext }
270
271
272 % default for config point (0 args)
273 \cs_new_protected:Npn \@footnotetext@cfgpointiii { \rule\z@\footnotesep }
274
275 % default for config point (0 args)
276 \cs_new_protected:Npn \@footnotetext@cfgpointiv { \@finalstrut\strutbox }
277
278
279 % kernel hook for tagging (2 args)
280 \cs_new_protected:Npn \@kernel@process@footnotetext {}
281
282 % Provide the name \LaTeXe{} is used to and do this unconditionally
283 % (no patching of class code if any). This means that if a class provides it own
284 % definition that gets lost and if necessary needs to be handled
285 % with firstaid (or updating of the class.
286
287 \AddToHook{begindocument}{
288     \cs_set_eq:NN \@footnotetext \fnote_footnotetext:n
289 }
290
291 % alterations not covered:
292 %
293 % ./revtex4-1/revtex4-1.cls ./revtex/ltxutil.sty ./revtex/revtex4-2.cls ... (need analysis)
294 % ./bigfoot/bigfoot.sty
295
296
297
298 % \footnotemargin is the logic implemented by footmisc. Perhaps we

```

```

299 % don't want to do this like that in the kernel but for now I have
300 % used this interface unchanged.
301
302
303 \newdimen\footnotemargin
304 \footnotemargin\maxdimen      % no value given
305
306 \AtBeginDocument{
307   \ifdim \footnotemargin=\maxdimen
308     \setlength\footnotemargin{1.8em}
309   \fi
310 }
311
312
313 \cs_new_protected:Npn \fnote_makefntext:n #1 {

```

Some classes in their redefinition for `\@makefntext` have places some paragraph parameters at this point, but those can equally well go into the hook `fntext/para`. We therefore do not provide a further hook at this point.

```

314   \@makefntext@cfgpoint
315   {
316     \ifdim\footnotemargin>\z@
317       \hb@xt@ \footnotemargin{\hss\@makefnmark}
318     \else
319       \ifdim\footnotemargin=\z@
320         \llap{\@makefnmark}
321       \else
322         \ifdim\footnotemargin=-\maxdimen
323           \@makefnmark
324         \else
325           \llap{\hb@xt@ -\footnotemargin{\@makefnmark\hss}}
326         \fi
327       \fi
328     \fi
329   }
330   \@makefntext@cfgpointii
331   { #1 }
332 }
333
334
335
336
337 % default for config point (1 arg)
338 \cs_new_protected:Npn \@makefntext@cfgpoint { \noindent }
339
340 % default for config point (1 arg)
341 \cs_new_protected:Npn \@makefntext@cfgpointii #1 { #1 }

```

If the definition for `\@makefntext` is that of the standard classes then replace it with `\fnote_makefntext:n`, otherwise try to patch the definition.

Here is the the definition the way it is in `classes.dtx`. Notice that (for saving space) there is no space after `em` to terminate the assignment. We need to mimic that, otherwise a test would return false even if the definition has not been modified.

```

342 \newcommand\old@std@class@makefntext[1]{%
343   \parindent 1em%

```

```

344 \noindent
345 \hb@xt@1.8em{\hss\@makefnmark}#1}
346

```

Here is the messy code for patching. Note that this is only there to help classes along that aren't updated yet so it does some minimal patching to hopefully add configuration points in the right place.

What it does is roughly the following: It look for a definition of `\@makefnmark` of the form

```
{AAA \hbox BBB { CCC } DDD #1 EEE }
```

where “BBB” is something like to `1em` or similar. It then replaces that with

```
{AAA \@makefnmark@cfgpoint{\hbox BBB { CCC }} DDD
\@makefnmark@cfgpointii{#1} EEE }
```

The patching is not very careful, i.e., it assumes there is only one `#1` in the replacement text and that a `\hbox` found is the right one to patch. But that is enough to cater for all definitions of `\@makefnmark` out there in the TL distribution.

If `\hbox` is not found it tries the same looking for `\hb@xt@` which is what some classes use and if that is not found either it assume that this is a version that uses `\@makefnmark` without surrounding it in a box and if that fails it gives up with an `\ERROR` (which needs to get a proper definition).

```

347
348 \tl_new:N \l__fnote_patch_tl
349 \cs_new_eq:NN \__fnote_tmp:w \ERROR
350
351 \cs_new_protected:Npn \__fnote_patch:
352 {
353   \tl_set:Nn \l__fnote_patch_tl { \@makefnmark { \@makefnmark@cfgpointii{##1} } }
354   \tl_if_in:NnTF \l__fnote_patch_tl { \hbox }
355     { \cs_set_eq:NN \__fnote_tmp:w \__fnote_patch_hbox:w }
356     {
357       \tl_if_in:NnTF \l__fnote_patch_tl { \hb@xt@ }
358         { \cs_set_eq:NN \__fnote_tmp:w \__fnote_patch_hb@xt@:w }
359         {
360           \tl_if_in:NnTF \l__fnote_patch_tl { \@makefnmark }
361             { \cs_set_eq:NN \__fnote_tmp:w \__fnote_patch_@makefnmark:w }
362             { \ERROR
363               \cs_set_eq:NN \__fnote_tmp:w \exp_stop_f: }
364           }
365         }
366   \tl_set:Nf \l__fnote_patch_tl
367     { \exp_after:wN \__fnote_tmp:w \l__fnote_patch_tl }
368   \cs_set:Npn \__fnote_tmp:w { \long \def \@makefnmark ###1 }
369   \exp_after:wN \__fnote_tmp:w \exp_after:wN { \l__fnote_patch_tl }
370 }

```

If `\@makefnmark` contains `\hbox` then grab “AAA” as `#1` and “BBB” (up to the open `{}`) and return it as

```

AAA \@makefnmark@processX { \hbox BBB }
371 \cs_new:Npn \__fnote_patch_hbox:w #1 \hbox #2 #
372 { \exp_stop_f: #1 \@makefnmark@processX { \hbox #2 } }

```

Same for the other cases.

```

373 \cs_new:Npn \__fnote_patch_hb@xt@:w #1 \hb@xt@ #2 #
374 { \exp_stop_f: #1 \@makefnmark@processX { \hb@xt@ #2 } }
375 \cs_new:Npn \__fnote_patch_@makefnmark:w #1 \@makefnmark
376 { \exp_stop_f: #1 \@makefnmark@processX { \use:n } { \@makefnmark } }

```

The code provided by Bruno above expects 2 arguments but we need a different structure so this is a simple reshuffling. Would be better if we can patch the right structure in directly, but I'm not a patch person, so this is the simple way out for now:

```

377 \cs_new:Npn \@makefnmark@processX #1#2{\@makefnmark@cfpoint{#1{#2}}}

```

At `\begin{document}` check if the current definition is that of the standard classes and if so replace it by `\fnote_makefnmark:n` otherwise try and patch the definition using the approach above.

```

378
379 \AddToHook{begindocument}{
380   \cs_if_eq:NNTF \@makefnmark \old@std@class@makefnmark
381     {
382       \cs_set_eq:NN \@makefnmark \fnote_makefnmark:n
383     }
384     {
385       \__fnote_patch:
386     }
387 }
388
389
390 % possibly add the following to check for multiple \hbox in
391 % the definition:
392 %
393 % \seq_set_split:NnV \l__fnote_patch_seq { \hbox } \l__fnote_patch_tl
394 % \int_compare:nT { \seq_count:N \l__fnote_patch_seq } > 2 \ERROR
395 %

```

## 4.2 Document-level commands

```

396
397 \DeclareDocumentCommand\footnotetext {om} {
398   \fnote_set_fnmark:nn {#1} \@mpfn
399   \@footnotetext {#2}
400 }
401
402
403 %-----
404
405
406 \DeclareDocumentCommand\footnote {om} {
407   \fnote_step_fnmark:nn {#1} \@mpfn
408   \cs_set_eq:NN \__fnote_footnotemark_finish: \prg_do_nothing:
409   \@footnotemark
410   \cs_set_eq:NN \__fnote_footnotemark_finish: \__fnote_finish:
411   \@footnotetext {#2}
412   \__fnote_footnotemark_finish:
413 }
414

```

```

415 %-----
416
417
418 \DeclareDocumentCommand\footnotemark {o} {
419   \fnote_step_fnmark:nn {#1} { footnote }
420   \@footnotemark
421 }
422
423
424 %-----
425
426 \DeclareDocumentCommand\footref {m}{%
427   \begingroup
428     \unrestored@protected@xdef\@thefnmark{\ref{#1}}%
429   \endgroup
430   \@footnotemark
431 }
432
433 <@@=>

```

## 4.3 Firstaid for packages and classes

### 4.3.1 setspace

It should not overwrite it any longer but use a hook, so for now we do just that here.

```

434 \AddToHook{package/setspace/after}
435   {\let \@footnotetext \fnote_footnotetext:n
436     \AddToHook{fntext}[setspace]{\let\baselinestretch\setspace@singlespace}}

```

### 4.3.2 hyperref

Prevent hyperref from redefining footnote stuff — this is a temp solution.

```

437 \AddToHook{package/hyperref/after}{
438   \let\H@@footnotetext\fnote_footnotetext:n
439   \let\H@@footnotemark\fnote_footnotemark:
440   \let \@footnotetext \fnote_footnotetext:n
441   \let \@footnotemark \fnote_footnotemark:
442 }
443
444
445

```

## 4.4 Stuff that needs cleanup and documentation

```

446
447
448 %-----
449
450 % use of kerns to mark h-mode positions (unit sp)
451 %
452 % 1 = CJK
453 % 2 = CJK
454 % 3 = multiple footnotes (footmisc, koma, eledmac, tufte, memoir,
455 %   parnotes, sidenotes)

```

```

456 % 3 = outer kern in letter spacing (letterspace)
457 % 3 = beginning of list (examdesign.cls)
458 % 4 = CJK pigin
459 % 5 = CJK ruby
460
461 % 1-4 = polyglossia for korean
462
463 %-----
464
465
466
467 %-----
468 % Tagging
469 %-----
470
471 % hyperref support only when loaded (improve integration)
472
473 \newcounter{absfootnote}
474 \AddToHook{fnmark/begin}{\stepcounter{absfootnote}} % too simple (fails with opt args)
475
476
477
478 % this is rubbish and should be handled better:
479
480 \cs_new_protected:Npn \tag_if_loaded:TF { \cs_if_exist:NTF \tag_struct_begin:n }
481
482
483
484 \cs_new_protected:Npn \tag@FEMark #1 {
485   \tag_if_loaded:TF
486     {
487       \tag_mc_end_push:
488       \exp_args:Nx
489       \tag_struct_begin:n{tag=Lbl,ref=fn.\the\c@absfootnote}
490       \tag_mc_begin:n{tag=Lbl}
491       \IfPackageLoadedTF{hyperref}{ \hyper@linkstart
492         {link}{fn.\the\c@absfootnote} }{}
493       #1
494       \IfPackageLoadedTF{hyperref}{ \hyper@linkend }{}
495       \tag_mc_end:
496       \tag_struct_end:
497       \tag_mc_begin_pop:n{ }
498     }
499     { #1 }
500 }
501
502 % to be done next round around:
503 %
504 % \the\c@absfootnote should be replaced directly by some command with default meaning
505 % \the\c@absfootnote so that the actual reference can be changed from the outside.
506 %
507 % there are several instances that are curenly hardwired.
508
509 \cs_set_eq:NN \@kernel@process@makefnmark \tag@FEMark

```



```

510
511
512
513 % kernel hook for tagging (2 args)
514 \cs_set:Npn \@kernel@process@footnotetext #1#2 {
515   \tag_if_loaded:TF
516     {
517       \tag_mc_end_push:
518       \tag_struct_begin:n { tag=FENote,label=fn.\the\c@absfootnote }
519       #1 {#2}
520       \tag_struct_end:
521       \tag_mc_begin_pop:n{ }
522     }
523     { #1 {#2} }
524 }
525
526
527
528 \cs_set:Npn \@makefntext@cfgpoint #1 {
529   \noindent
530   \cs_if_exist:NT \tag_struct_begin:n { \tag_mc_end_push: }
531   \tag@FELbl { #1 }
532 }
533
534 \cs_set:Npn \@makefntext@cfgpointii #1 {
535   \tag@FENote { #1 }
536   \cs_if_exist:NT \tag_struct_begin:n { \tag_mc_begin_pop:n{ } }
537 }
538
539
540
541
542 \cs_new_protected:Npn \tag@FELbl #1 {
543   \tag_if_loaded:TF
544     {
545       % target should perhaps be raised ...
546       \IfPackageLoadedTF{hyperref}{ \hypertarget{fn.\the\c@absfootnote}{ } }{}
547       %\tag_struct_begin:n { tag=FENote,label=fn.\the\c@absfootnote } %alternative location for
548       \tag_struct_begin:n { tag=Lbl }
549       \tag_mc_begin:n { tag=Lbl }
550       #1
551       \tag_mc_end:
552       \tag_struct_end:
553     }
554     { #1 }
555 }
556
557 \cs_new_protected:Npn \tag@FENote #1 {
558   \tag_if_loaded:TF
559     {
560       \tag_mc_begin:n{tag=FENote}
561       #1
562       \tag_mc_end:
563       %\tag_struct_end: %alternative location for structure end but ends inside a P

```

```

564     }
565     { #1 }
566 }
567
568 %-----
569
570
571 \ExplSyntaxOff
572 </kernel>

```

## 5 Reimplementing the footmisc package

```

573 <*footmisc>
574 %%
575 %% Copyright (c) 1995-2011 Robin Fairbairns
576 %% Copyright (c) 2018-2022 Robin Fairbairns, Frank Mittelbach
577 %%
578 %% This file is part of the 'latex-lab Bundle'.
579 %% -----
580 %%
581 %% It may be distributed and/or modified under the
582 %% conditions of the LaTeX Project Public License, either version 1.3c
583 %% of this license or (at your option) any later version.
584 %% The latest version of this license is in
585 %% https://www.latex-project.org/lppl.txt
586 %% and version 1.3c or later is part of all distributions of LaTeX
587 %% version 2008 or later.
588 %%
589 %% This work has the LPPL maintenance status 'maintained'.
590 %%
591 %%
592 %% File: footmisc.dtx (C) Copyright 1995-2011 Robin Fairbairns
593 %% (C) Copyright 2018-2022 Frank Mittelbach
594 \NeedsTeXFormat{LaTeX2e}
595 \providecommand\DeclareRelease[3]{}
596 \providecommand\DeclareCurrentRelease[2]{}
597
598 \DeclareRelease{v5}{2011-06-06}{footmisc-2011-06-06.sty}
599 \DeclareCurrentRelease{}{2022-02-14}
600 \ProvidesPackage{latex-lab-footmisc}%
601 [2022/03/08 v6.0d
602 a miscellany of footnote facilities -- latex-lab version%
603 ]
604
605 \NeedsTeXFormat{LaTeX2e}[2020/10/01]
606 \newtoks\FN@temptoken
607 \providecommand\protected@writeaux{%
608 \protected@write\@auxout
609 }
610 \def\l@advance@macro{\@@dvance@macro\edef}
611 \def\@@dvance@macro#1#2#3{\expandafter\@tempcnta#2\relax
612 \advance\@tempcnta#3\relax
613 #1#2{\the\@tempcnta}%
614 }

```

```

615 \let\@advance@macro\l@advance@macro
616 \DeclareOption{symbol}{\renewcommand\thefootnote{\fnsymbol{footnote}}}
617 \newif\ifFN@robust \FN@robustfalse
618 \DeclareOption{symbol*}{%
619   \renewcommand\thefootnote{\@fnsymbol\c@footnote}%
620   \FN@robusttrue
621   \AtEndOfPackage{\setfnsymbol{lampport*-robust}}}%
622 }
623 \newif\ifFN@para \FN@parafalse
624 \DeclareOption{para}{%

```

Options are executed in the order of declaration, thus no point in checking for side option as footmisc did in the past

```

625 %   \PackageError{footmisc}{Option "\CurrentOption" incompatible with
626 %                                     option "side"}%
627 %                                     {I shall ignore "\CurrentOption"}%
628 \FN@paratrue
629 \setlength\footnotemargin{-\maxdimen} % default when para is used
630 }
631 \DeclareOption{side}{\ifFN@para
632   \PackageError{footmisc}{Option "\CurrentOption" incompatible with
633   option "para"}%
634   {I shall ignore "\CurrentOption"}%
635 \else
636   \def\@footnotetext@cfgpoint {\marginpar}
637   \AddToHook{fntext/para}{%
638     \hsize\marginparwidth % correct the default \hsize
639     \footnotesep\z@ % don't add a default separation
640   }
641   \def\@footnotetext@cfgpointii {\@makefntext}
642   \def\@footnotetext@cfgpointiii {}
643   \def\@footnotetext@cfgpointiv {}
644 \fi
645 }
646 \let\footnotelayout\@empty
647 \DeclareOption{ragged}{%
648   \@ifundefined{RaggedRight}{%
649     {\renewcommand\footnotelayout{\linepenalty50 \raggedright}}%
650     {\renewcommand\footnotelayout{\linepenalty50 \RaggedRight}}%
651   }
652 \newif\ifFN@perpage
653 \FN@perpagefalse
654 \DeclareOption{perpage}{%
655   \FN@perpagetrue
656 }
657 \newif\ifFN@fixskip \FN@fixskipfalse
658
659 \let\FN@bottomcases\thr@@
660 \newif\ifFN@abovefloats \FN@abovefloatstrue
661 \DeclareOption{bottom}{%
662   \let\FN@bottomcases\@ne
663   \FN@abovefloatsfalse
664   \FN@fixskiptrue
665 }

```

```

666 \DeclareOption{bottomfloats}{%
667   \let\FN@bottomcases\tw@
668   \FN@abovefloatstrue \FN@fixskiptrue
669 }
670 \DeclareOption{abovefloats}{\FN@abovefloatstrue \FN@fixskiptrue}
671 \DeclareOption{belowfloats}{\FN@abovefloatsfalse \FN@fixskiptrue}
672 \DeclareOption{marginal}{%
673   \footnotemargin-0.8em\relax
674 }
675 \DeclareOption{flushmargin}{%
676   \footnotemargin0pt\relax
677 }
678 \newif\ifFN@hangfoot \FN@hangfootfalse
679 \DeclareOption{hang}{%
680   \FN@hangfoottrue
681 }
682 \newcommand*\hangfootparskip{0.5\baselineskip}
683 \newcommand*\hangfootparindent{0em}%
684 \DeclareOption{norule}{%
685   \renewcommand\footnoterule{}%
686   \advance\skip\footins 4\p@\@plus2\p@\relax
687 }
688 \DeclareOption{splitrule}{%
689   \gdef\split@prev{0}
690   \let\pagefootnoterule\footnoterule
691   \let\mpfootnoterule\footnoterule
692   \def\splitfootnoterule{\kern-3\p@ \hrule \kern2.6\p@}
693   \def\footnoterule{\relax
694     \ifx \@listdepth\@mplistdepth
695       \mpfootnoterule
696     \else
697       \ifnum\split@prev=\z@
698         \pagefootnoterule
699       \else
700         \splitfootnoterule
701       \fi
702       \xdef\split@prev{\the\insertpenalties}%
703     \fi
704   }%
705 }
706 \newif\ifFN@stablefootnote \FN@stablefootnotefalse
707 \DeclareOption{stable}{\FN@stablefootnotetrue}
708 \newif\ifFN@multiplefootnote \FN@multiplefootnotefalse
709 \DeclareOption{multiple}{\FN@multiplefootnotetrue}
710 \ProcessOptions

```

This version of footmisc can assume that the new OR code is already available, thus nothing needs loading at this point. However, as long as we use this code also in a package version that can be loaded by other package while we are in a transition phase it is not clear whether not the kernel code is already available for other packages.

```

711 %\@ifundefined{kernel@before@ccclv}
712 % {\input{latex-lab-new-or.ltx}}{}

```

Footnote box layout for para footnotes; this would also be the hook to support dblfootnotes (from the dblfnote package if we integrate that).

```

713 \ifFN@para
714   \def\@makecol@cfgpointii {%
715     \global\setbox\footins\vbox{\FN@makefootnoteparagraph}%
716   }
717 \fi
718 \ifFN@fixskip
719   \def\@outputbox@removebskip{%
720     \ifx\@textbottom\relax \else
721       \@outputbox@append{%
722         \@tempskipa\lastskip
723         \ifnum \gluestretchorder\@tempskipa>\z@
724           \vskip-\@tempskipa
725           \xdef\@outputbox@reinsertbskip
726             {\noexpand\@outputbox@append{\vskip\the\@tempskipa}}%
727         \else
728           \global\let\@outputbox@reinsertbskip\relax
729         \fi
730       }%
731     \fi
732   }
733 \let\@outputbox@reinsertbskip\relax
734 \else
735   \let\@outputbox@removebskip \relax
736   \let\@outputbox@reinsertbskip\relax
737 \fi
738 \ifcase \FN@bottomcases\relax
739 \ERROR
740 \or
741   \ifFN@abovefloats
742     \def\@makecol@cfgpoint {%
743       \@if@footnotes@TF
744         {\@outputbox@append{\vfill}}%
745         {\@if@bfloats@TF{\@outputbox@append{\vfill}}%
746           {\@outputbox@reinsertbskip}}%
747       \@outputbox@appendfootnotes
748       \@outputbox@attachfloats
749     }
750   \else
751     \def\@makecol@cfgpoint {%
752       \@outputbox@attachfloats
753       \@if@footnotes@TF
754         {\@outputbox@append{\vfill}}%
755         {\@outputbox@reinsertbskip}%
756       \@outputbox@appendfootnotes
757     }
758   \fi
759 \or
760   \ifFN@abovefloats
761     \def\@makecol@cfgpoint {%
762       \@outputbox@appendfootnotes
763       \@if@bfloats@TF
764         {\@outputbox@append{\vfill}}%
765         {\@outputbox@reinsertbskip}%
766       \@outputbox@attachfloats

```

```

767     }
768   \else
769     \def\@makecol@cfgpoint {%
770       \@if@footnotes@TF
771         {\@outputbox@append{\vfill}}%
772         {\@if@bfloats@TF{\@outputbox@append{\vfill}}%
773           {\@outputbox@reinsertbskip}}%
774       \@outputbox@attachfloats
775       \@outputbox@appendfootnotes
776     }
777   \fi
778 \or
779 \ifFN@abovefloats
780   \def\@makecol@cfgpoint {%
781     \@outputbox@appendfootnotes
782     \@outputbox@attachfloats
783     \@outputbox@reinsertbskip
784   }
785 \else
786   \def\@makecol@cfgpoint {%
787     \@outputbox@attachfloats
788     \@outputbox@appendfootnotes
789     \@outputbox@reinsertbskip
790   }
791 \fi
792 \else
793 \ERROR
794 \fi
795
796 % next can be dropped when cleaned up
797 \newif\ifFN@setspace
798 \@ifpackageloaded{setspace}%
799 {%
800   \FN@setspace>true
801   \@ifclassloaded{memoir}%
802   {%
803     \AddToHook{fntext}{\let\baselinestretch\m@m@singlespace}%
804     \let\FN@baselinestretch\m@m@singlespace
805   }%
806   {%
807     \AddToHook{fntext}{\let\baselinestretch\setspace@singlespace}%
808     \let\FN@baselinestretch\setspace@singlespace
809   }%
810 }%
811 {%
812   \FN@setspace>false
813 }
814
815
816
817 \ifFN@para
818   \def\@footnotetext@cfgpoint {\insert\footins}
819
820   \long\def\@footnotetext@cfgpointii #1{%

```

```

821 \setbox\FN@tempboxa\hbox{\@makefntext{#1}}%
822 \dp\FN@tempboxa\z@
823 \ht\FN@tempboxa
824 \dimexpr\wd\FN@tempboxa *%
825 \footnotebaselineskip /\columnwidth\relax
826 \box\FN@tempboxa
827 }
828
829
830 \def\@footnotetext@cfgpointiii {}
831 \def\@footnotetext@cfgpointiv {% config point
832 \strut
833 \penalty-10\relax
834 \hskip\footglue
835 }
836 \fi
837
838
839
840 \ifFN@para
841 \let\FN@tempboxa\@tempboxa
842 \newbox\FN@tempboxb
843 \newbox\FN@tempboxc
844 \newskip\footglue \footglue=1em plus.3em minus.3em
845
846 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
847 \newdimen\footnotebaselineskip
848
849 % establish late:
850
851 \AddToHook{begindocument/before} {%
852 {%
853 \footnotesize
854 \global\footnotebaselineskip=\normalbaselineskip
855 }%
856 }

```

The coding is based on David Kastrup's improvement to Don Knuth's original implementation. You find in the  $\TeX$ book if you own the latest edition.

```

857
858 \long\def\FN@makefootnoteparagraph{%
859 \FN@setfootnoteparawidth
860 \@parboxrestore
861 \baselineskip=\footnotebaselineskip
862 \unvbox\footins \FN@removehboxes
863 \RawParEnd
864 }
865 \def\FN@removehboxes{\setbox\FN@tempboxa\lastbox
866 \ifhbox\FN@tempboxa{\FN@removehboxes}%
867 \unhbox\FN@tempboxa
868 \else
869 \RawNoindent
870 \rule\z@\footnotesep
871 \fi
872 }

```

```

873 \fi
874
875
876 \@ifpackageloaded{multicol}
877   {\def\FN@setfootnoteparawidth
878     {\hsize\ifnum\doublecol@number>\@ne
879       \textwidth
880       \else \columnwidth \fi}}
881   {\def\FN@setfootnoteparawidth{\hsize\columnwidth}}
882
883 \ifFN@perpage
884   \RequirePackage{perpage}
885   \MakePerPage{footnote}

```

Fix a bug in perpage ...

```

886 \def\@stpelt#1{\global\csname c@#1\endcsname \m@ne
887   \stepcounter{#1}%
888   \pp@fix@MakePerPage{#1}%
889   }
890 \def\pp@fix@MakePerPage#1{%
891   \ifnum \value{#1}>\z@
892     \addtocounter{#1}\m@ne\fi
893   }

```

The above code may look a bit odd: the `\stepcounter` sets the counter to zero and then we alter it if it is not zero. The reason is that `\stepcounter` resets other counters and when `perpage` is loaded this results in updating counters on the reset list to 1 (or to a higher starting value if `\MakePerPage` is used with an optional argument, which is precisely the problem here. By subtracting 1 in that case we set it back to 1 lower than the starting value.

But to make this fully work we also need to update a support command in `perpage`:

```

894 \def\pp@c1@end@iii\stepcounter#1\pp@fix@MakePerPage#2{}
895 \fi
896
897
898 \ifFN@para
899
900 % This can use the default interface, except that a negative value for
901 % \footnotemargin makes little sense, so we test for this and warn if
902 % necessary. But -\maxdimen is ok again, so would need to be a litte bit more elaborate.
903 %
904
905 %\AddToHook{fntext/para}{
906 % \ifdim \footnotemargin >\z@ \else
907 % \PackageWarningNoline{footmisc}{Option 'para' needs positive \noexpand\footnotemargin}%
908 % \footnotemargin 1.8em\relax
909 % \fi
910 %}
911
912
913 \AddToHook{fntext/begin}{\nobreak \hspace{.2em}}
914
915
916
917

```



```

918 \else
919
920 \ifFN@hangfoot
921   \long\def\@makefntext#1{%
922     \bgroup
923     \setbox\@tempboxa\hbox{%
924       \ifdim\footnotemargin>\z@
925         \hb@xt@\footnotemargin{\@makefnmark\hss}%
926       \else
927         \@makefnmark
928       \fi
929     }%
930     \leftmargin\wd\@tempboxa
931     \rightmargin\z@
932     \linewidth \columnwidth
933     \advance \linewidth -\leftmargin
934     \parshape \@ne \leftmargin \linewidth
935     \footnotesize
936     \@setpar{\@@par}}%
937     \leavevmode
938     \llap{\box\@tempboxa}%
939     \parskip\hangfootparskip\relax
940     \parindent\hangfootparindent\relax
941     \footnotelayout#1%
942     \par
943   \egroup
944 }
945
946 \else
947
948 % This is now using the default interface:
949 %
950 % \long\def\@makefntext#1{%
951 %   \parindent1em
952 %   \noindent
953 %   \ifdim\footnotemargin>\z@
954 %     \hb@xt@ \footnotemargin{\hss\@makefnmark}%
955 %   \else
956 %     \ifdim\footnotemargin=\z@
957 %       \llap{\@makefnmark}%
958 %     \else
959 %       \llap{\hb@xt@ -\footnotemargin{\@makefnmark\hss}}%
960 %     \fi
961 %   \fi
962 %   \footnotelayout#1%
963 % }
964
965 \fi
966 \fi
967
968
969
970
971 \ifFN@multiplefootnote

```

```

972 \providecommand*\multiplefootnotemark}{3sp}
973 \providecommand*\multifootsep}{,}
974 \AddToHook{fnmark}      {\FN@mf@check}
975 \AddToHook{fnmark/end}  {\FN@mf@prepare}
976 %
977 \def\FN@mf@prepare{%
978   \kern-\multiplefootnotemark
979   \kern\multiplefootnotemark\relax
980 }
981 \def\FN@mf@check{%
982   \ifdim\lastkern=\multiplefootnotemark\relax
983   ??? is that necessary or even correct ??
984   \edef\x@sf{\the\spacefactor}%
985   ??? shouldn't that be 2 unkerns ?? (none would also be ok)
986   \unkern % new
987   \unkern
988   \textsuperscript{\multifootsep}%
989   \spacefactor\x@sf\relax
990   \fi
991 }
992 \else
993   \let\FN@mf@prepare\relax
994   \fi
995 \ifFN@stablefootnote
996 \let\FN@sf@@footnote\footnote
997 \def\footnote{\ifx\protect\@typeset@protect
998   \expandafter\FN@sf@@footnote
999   \else
1000   \expandafter\FN@sf@gobble@opt
1001   \fi
1002 }
1003 \edef\FN@sf@gobble@opt{\noexpand\protect
1004   \expandafter\noexpand\csname FN@sf@gobble@opt \endcsname}
1005 \expandafter\def\csname FN@sf@gobble@opt \endcsname{%
1006   \@ifnextchar[%]
1007     \FN@sf@gobble@twobrace
1008     \@gobble
1009 }
1010 \def\FN@sf@gobble@twobrace[#1]#2{}
1011 \let\FN@sf@@footnotemark\footnotemark
1012 \def\footnotemark{\ifx\protect\@typeset@protect
1013   \expandafter\FN@sf@@footnotemark
1014   \else
1015   \expandafter\FN@sf@gobble@optonly
1016   \fi
1017 }
1018 \edef\FN@sf@gobble@optonly{\noexpand\protect
1019   \expandafter\noexpand\csname FN@sf@gobble@optonly \endcsname}
1020 \expandafter\def\csname FN@sf@gobble@optonly \endcsname{%
1021   \@ifnextchar[%]
1022     \FN@sf@gobble@bracket
1023     {}%
1024 }
1025 \def\FN@sf@gobble@bracket[#1]{}

```

```

1026 \fi
1027 \newcommand\setfnsymbol[1]{%
1028   \@bsphack
1029   \@ifundefined{FN@fnsymbol@#1}{%
1030     {%
1031       \PackageError{footmisc}{Symbol style "#1" not known}{%
1032         \@eha
1033       }{%
1034         \expandafter\let\expandafter\@fnsymbol\csname
1035           FN@fnsymbol@#1\endcsname
1036       }%
1037     \@esphack
1038   }
1039   \let\FN@fnsymbol@lamport\@fnsymbol
1040   \newif\if@tempswb
1041   \DeclareDocumentCommand\DefineFNSymbols {sm0{text}m}{-%
1042     \expandafter\ifx\csname FN@fnsymbol@#2\endcsname\relax
1043       \PackageInfo{footmisc}{Declaring symbol style #2}%
1044     \else
1045       \PackageWarning{footmisc}{Redeclaring symbol style #2}%
1046     \fi
1047     \toks@{}%
1048     \def\@tempb{\end}%
1049     \FN@build@symboldef#4\end
1050     \def\@tempc{math}%
1051     \def\@tempd{#3}%
1052     \expandafter\xdef\csname FN@fnsymbol@#2\endcsname##1{%
1053       \ifx\@tempc\@tempd
1054         \noexpand\ensuremath
1055       \else
1056         \noexpand\nfss@text
1057       \fi
1058       {%
1059         \noexpand\ifcase##1%
1060         \the\toks@
1061         \noexpand\else
1062         \IfBooleanTF#1{\noexpand\@ctrerrr}{%
1063           {\noexpand\FN@orange##1}}%
1064         \noexpand\fi
1065       }%
1066     }%
1067   }
1068   \def\FN@build@symboldef#1{%
1069     \def\@tempa{#1}%
1070     \ifx\@tempa\@tempb
1071     \else
1072       \toks@\expandafter{\the\toks@\or#1}%
1073       \expandafter\FN@build@symboldef
1074     \fi
1075   }
1076   \DeclareDocumentCommand\DefineFNSymbolsTM {smm}{-%
1077     \expandafter\ifx\csname FN@fnsymbol@#2\endcsname\relax
1078       \PackageInfo{footmisc}{Declaring symbol style #2}%
1079     \else

```

```

1080     \PackageWarning{footmisc}{Redeclaring symbol style #2}%
1081     \fi
1082     \toks@{}%
1083     \def\@tempb{\end}%
1084     \FN@build@symboldefTM#3\end\@null
1085     \expandafter\xdef\csname FN@fnsymbol@#2\endcsname##1{%
1086         \noexpand\ifcase##1%
1087             \the\toks@
1088         \noexpand\else
1089             \IfBooleanTF#1{\noexpand\@ctrerr}%
1090                 {\noexpand\FN@orange##1}%
1091             \noexpand\fi
1092     }%
1093 }
1094 \def\FN@build@symboldefTM#1#2{%
1095     \def\@tempa{#1}%
1096     \ifx\@tempa\@tempb
1097     \else
1098         \toks@\expandafter{\the\toks@\or\TextOrMath{#1}{#2}}%
1099         \expandafter\FN@build@symboldefTM
1100     \fi
1101 }
1102 \def\FN@orange#1{%
1103     \ifFN@robust
1104         \@arabic#1%
1105         \@bsphack
1106         \PackageInfo{footmisc}{Footnote number \number#1 out of range}%
1107         \protect\@fnsymbol@orange
1108         \@esphack
1109     \else \@ctrerr \fi
1110 }
1111 \global\let\@diagnose@fnsymbol@orange\relax
1112 \AtEndDocument{\@diagnose@fnsymbol@orange}
1113 \def\@fnsymbol@orange{%
1114     \gdef\@diagnose@fnsymbol@orange{%
1115         \PackageWarningNoLine{footmisc}{Some footnote number(s)
1116             were out of range
1117             \MessageBreak
1118             see log for details%
1119         }%
1120     }%
1121 }
1122 \DefineFNsymbolsTM{bringhurst}{%
1123     \textasteriskcentered *%
1124     \textdagger \dagger
1125     \textdaggerdbl \ddagger
1126     \textsection \mathsection
1127     \textbardbl \||%
1128     \textparagraph \mathparagraph
1129 }%
1130 \DefineFNsymbolsTM{chicago}{%
1131     \textasteriskcentered *%
1132     \textdagger \dagger
1133     \textdaggerdbl \ddagger

```

```

1134 \textsection \mathsection
1135 \textbardbl \|%
1136 \#\#%
1137 }%
1138 \DefineFNsymbolsTM{wiley}{%
1139 \textasteriskcentered *%
1140 {\textasteriskcentered\textasteriskcentered}{**}%
1141 \textdagger \dagger
1142 \textdaggerdbl \ddagger
1143 \textsection \mathsection
1144 \textparagraph \mathparagraph
1145 \textbardbl \|%
1146 }%
1147 \DefineFNsymbolsTM{lampport-robust}{%
1148 \textasteriskcentered *%
1149 \textdagger \dagger
1150 \textdaggerdbl \ddagger
1151 \textsection \mathsection
1152 \textparagraph \mathparagraph
1153 \textbardbl \|%
1154 {\textasteriskcentered\textasteriskcentered}{**}%
1155 {\textdagger\textdagger}{\dagger\dagger}%
1156 {\textdaggerdbl\textdaggerdbl}{\ddagger\ddagger}%
1157 }
1158 \DefineFNsymbolsTM*{lampport*}{%
1159 \textasteriskcentered *%
1160 \textdagger \dagger
1161 \textdaggerdbl \ddagger
1162 \textsection \mathsection
1163 \textparagraph \mathparagraph
1164 \textbardbl \|%
1165 {\textasteriskcentered\textasteriskcentered}{**}%
1166 {\textdagger\textdagger}{\dagger\dagger}%
1167 {\textdaggerdbl\textdaggerdbl}{\ddagger\ddagger}%
1168 {\textsection\textsection}{\mathsection\mathsection}%
1169 {\textparagraph\textparagraph}{\mathparagraph\mathparagraph}%
1170 {\textasteriskcentered\textasteriskcentered\textasteriskcentered}{***}%
1171 {\textdagger\textdagger\textdagger}{\dagger\dagger\dagger}%
1172 {\textdaggerdbl\textdaggerdbl\textdaggerdbl}{\ddagger\ddagger\ddagger}%
1173 {\textsection\textsection\textsection}%%
1174 {\mathsection\mathsection\mathsection}%
1175 {\textparagraph\textparagraph\textparagraph}%%
1176 {\mathparagraph\mathparagraph\mathparagraph}%
1177 }
1178 \setfnsymbol{lampport*}
1179 \DefineFNsymbolsTM{lampport*-robust}{%
1180 \textasteriskcentered *%
1181 \textdagger \dagger
1182 \textdaggerdbl \ddagger
1183 \textsection \mathsection
1184 \textparagraph \mathparagraph
1185 \textbardbl \|%
1186 {\textasteriskcentered\textasteriskcentered}{**}%
1187 {\textdagger\textdagger}{\dagger\dagger}%

```

```

1188 {\textdaggerdbl\textdaggerdbl}{\ddagger\ddagger}%
1189 {\textsection\textsection}{\mathsection\mathsection}%
1190 {\textparagraph\textparagraph}{\mathparagraph\mathparagraph}%
1191 {\textasteriskcentered\textasteriskcentered\textasteriskcentered}{***}%
1192 {\textdagger\textdagger\textdagger}{\dagger\dagger\dagger}%
1193 {\textdaggerdbl\textdaggerdbl\textdaggerdbl}{\ddagger\ddagger\ddagger}%
1194 {\textsection\textsection\textsection}%%
1195 {\mathsection\mathsection\mathsection}%
1196 {\textparagraph\textparagraph\textparagraph}%%
1197 {\mathparagraph\mathparagraph\mathparagraph}%
1198 }
1199 \newcommand\mpfootnotemark{%
1200 \@ifnextchar[%
1201 \@xmpfootnotemark
1202 {%
1203 \stepcounter\@mpfn
1204 \protected@xdef\@thefnmark{\thempfn}%
1205 \@footnotemark
1206 }%
1207 }
1208 \def\@xmpfootnotemark[#1]{%
1209 \begingroup
1210 \csname c@\@mpfn\endcsname #1\relax
1211 \unrestored@protected@xdef\@thefnmark{\thempfn}%
1212 \endgroup
1213 \@footnotemark
1214 }
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1215
1216 \endinput
1217 </footmisc>

```

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