

The `zref-vario` package

Code documentation

`gusbrs`

<https://github.com/gusbrs/zref-vario>
<https://www.ctan.org/pkg/zref-vario>

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EXPERIMENTAL

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1 Initial setup

Start the DocStrip guards.

```
1 <*package>
   Identify the internal prefix (LATEX3 DocStrip convention).
2 <@=zrefvario>
3 \def\zrefvario@required@kernel{2023-11-01}
4 \NeedsTeXFormat{LaTeX2e}[\zrefvario@required@kernel]
5 \providecommand\IfFormatAtLeastTF{\@ifl@t@r\fmtversion}
6 \IfFormatAtLeastTF{\zrefvario@required@kernel}
7   {}
8   {%
9     \PackageError{zref-vario}{LaTeX kernel too old}
10    {%
11      'zref-vario' requires a LaTeX kernel \zrefvario@required@kernel\space or newer.%
12    }%
13  }%
   Identify the package.
14 \ProvidesExplPackage {zref-vario} {2024-11-07} {0.1.11}
15   {Extended LaTeX page cross-references with varioref and zref-clever}
   Required packages.
16 \RequirePackage { zref-clever } [ 2022-01-28 ] % v0.2.0-alpha
17 \RequirePackage { varioref }
```

Also note that, contrary to zref-clever, zref-vario is incompatible with cleveref, because the latter patches varioref in ways that break zref-vario.

```
\l__zrefvario_tmpa_tl Temporary scratch variables.
\l__zrefvario_tmpb_tl
18 \tl_new:N \l__zrefvario_tmpa_tl
19 \tl_new:N \l__zrefvario_tmpb_tl
   (End of definition for \l__zrefvario_tmpa_tl and \l__zrefvario_tmpb_tl.)
```

2 Options

`\zvsetup`

`\zvsetup` Provide `\zvsetup`.

```
   \zvsetup{<options>}
20 \NewDocumentCommand \zvsetup { m }
21   { \keys_set:nn { zref-vario/setup } {#1} }
```

(End of definition for `\zvsetup`.)

pageprop

```
22 \tl_new:N \l__zrefvario_pageprop_tl
23 \keys_define:nn { zref-vario/setup }
24 {
25   pageprop .code:n =
26   {
27     \zref@ifpropundefined {#1}
28     { \msg_warning:nnn { zref-vario } { pageprop-not-declared } {#1} }
29     {
30       \zref@iflistcontainsprop { \ZREF@mainlist } {#1}
31       { \tl_set:Nn \l__zrefvario_pageprop_tl {#1} }
32       { \msg_warning:nnn { zref-vario } { pageprop-not-in-main } {#1} }
33     }
34   } ,
35   pageprop .value_required:n = true ,
36   pageprop .initial:n = { page } ,
37 }
38 \AddToHook { begindocument }
39 {
40   \keys_define:nn { zref-vario/setup }
41   {
42     pageprop .code:n =
43     {
44       \msg_warning:nnn { zref-vario }
45       { option-preamble-only } { pageprop }
46     }
47   }
48 }
49 \msg_new:nnn { zref-vario } { option-preamble-only }
50 { Option~'#1'~only~available~in~the~preamble~\msg_line_context:. }
51 \msg_new:nnn { zref-vario } { pageprop-not-declared }
52 {
53   Property~'#1'~not~declared~\msg_line_context:~
54   Using~default~'page'~property.
55 }
56 \msg_new:nnn { zref-vario } { pageprop-not-in-main }
57 {
58   Property~'#1'~not~in~main~list~\msg_line_context:~
59   Using~default~'page'~property.
60 }
```

3 Reference format

Provide some functions to define options names in a standard form.

```
\__zrefvario_ref_opt_default_cs:nn      \__zrefvario_ref_opt_default_cs:nn {<option>} {<signature>}
61 \cs_new:Npn \__zrefvario_ref_opt_default_cs:nn #1#2
62 { __zrefvario_ref_opt_default_ #1 : #2 }
```

(End of definition for __zrefvario_ref_opt_default_cs:nn.)

```
\__zrefvario_base_lang:n              \__zrefvario_base_lang:n {<language>}
63 \cs_new:Npn \__zrefvario_base_lang:n #1
```

```

64 {
65   \zrefclever_language_if_declared:nTF {#1}
66     { \tl_use:c { \zrefclever_language_varname:n {#1} } }
67     { zv_unknown_language }
68 }
69 \cs_generate_variant:Nn \__zrefvario_base_lang:n { e }

```

(End of definition for __zrefvario_base_lang:n.)

\l_zrefvario_ref_language_tl An internal version of \l_zrefclever_ref_language_tl, since we need to retrieve the current value of the variable in multiple places.

```

70 \tl_new:N \l__zrefvario_ref_language_tl
71 \tl_set:Nn \l__zrefvario_ref_language_tl { \l_zrefclever_ref_language_tl }

```

(End of definition for \l__zrefvario_ref_language_tl.)

```

\__zrefvario_ref_opt_name_lang_tl:nn   \__zrefvario_ref_opt_name_lang_tl:nn {<lang>} {<option>}
72 \cs_new:Npn \__zrefvario_ref_opt_name_lang_tl:nn #1#2
73   { g__zrefvario_ref_opt_lang_ \__zrefvario_base_lang:n {#1} _ #2 _tl }
74 \cs_generate_variant:Nn \__zrefvario_ref_opt_name_lang_tl:nn { en }

```

(End of definition for __zrefvario_ref_opt_name_lang_tl:nn.)

```

\__zrefvario_ref_opt_name_lang_cs:nnn   \__zrefvario_ref_opt_name_lang_cs:nnn {<lang>} {<option>} {<signature>}
75 \cs_new:Npn \__zrefvario_ref_opt_name_lang_cs:nnn #1#2#3
76   { __zrefvario_ref_opt_lang_ \__zrefvario_base_lang:n {#1} _ #2 : #3 }
77 \cs_generate_variant:Nn \__zrefvario_ref_opt_name_lang_cs:nnn { enn }

```

(End of definition for __zrefvario_ref_opt_name_lang_cs:nnn.)

Retrieving options values.

```

\__zrefvario_ref_opt_tl_get:nnN   \__zrefvario_ref_opt_tl_get:nnN {<lang>} {<option>} {<tl var to set>}
\__zrefvario_ref_opt_cs_get:nnnN  \__zrefvario_ref_opt_cs_get:nnnN {<lang>} {<option>}
\__zrefvario_ref_opt_cs_get:nnnN  {<cs signature>} {<cs to set>}
78 \cs_new_protected:Npn \__zrefvario_ref_opt_tl_get:nnN #1#2#3
79   {
80     \tl_if_exist:cTF
81       { \__zrefvario_ref_opt_name_lang_tl:nn {#1} {#2} }
82       {
83         \tl_set_eq:Nc #3
84           { \__zrefvario_ref_opt_name_lang_tl:nn {#1} {#2} }
85       }
86       {
87         \tl_set_eq:Nc #3
88           { \__zrefvario_ref_opt_name_lang_tl:nn { zv_unknown_language } {#2} }
89       }
90   }
91 \cs_generate_variant:Nn \__zrefvario_ref_opt_tl_get:nnN { enN }
92 \cs_new_protected:Npn \__zrefvario_ref_opt_cs_get:nnnN #1#2#3#4
93   {
94     \cs_if_exist:cTF
95       { \__zrefvario_ref_opt_name_lang_cs:nnn {#1} {#2} {#3} }
96       {
97         \cs_set_eq:Nc #4

```

```

98     { \_zrefvario_ref_opt_name_lang_cs:nnn {#1} {#2} {#3} }
99   }
100  {
101    \cs_if_exist:cTF
102    { \_zrefvario_ref_opt_default_cs:nn {#2} {#3} }
103    {
104      \cs_set_eq:Nc #4
105      { \_zrefvario_ref_opt_default_cs:nn {#2} {#3} }
106    }
107    {
108      \cs_set_eq:Nc #4
109      {
110        \_zrefvario_ref_opt_name_lang_cs:nnn
111        { zv_unknown_language } {#2} {#3}
112      }
113    }
114  }
115 }
116 \cs_generate_variant:Nn \_zrefvario_ref_opt_cs_get:nnnN { ennN }

```

(End of definition for `_zrefvario_ref_opt_tl_get:nnN` and `_zrefvario_ref_opt_cs_get:nnnN`.)

Handle the options set of the user commands, and add support for `varioref` optional arguments. All commands can receive the same set of options `\zcref` can, and these are processed the same way and “consumed” by any `\zcref` or `\zcpageref` calls. Besides those, `vother` is made available for `\zvpageref`, corresponding to its second optional argument, and `vcurrent` which is available to all commands except `\fullref`, corresponding to their first optional arguments. The distinction between `\l_zrefvario_reftextcurrent_tl` and `\l_zrefvario_vref_reftextcurrent_tl` is in their default/initial values. The default values for the optional arguments of `\vpageref`, `\vrefrange`, and `\vpagerefrange` are set to `\reftextcurrent`, while the default value of the optional argument of `\vref` is empty.

```

117 \tl_new:N \l_zrefvario_reftextcurrent_tl
118 \tl_set:Nn \l_zrefvario_reftextcurrent_tl { \reftextcurrent }
119 \tl_new:N \l_zrefvario_vref_reftextcurrent_tl
120 \tl_new:N \l_zrefvario_reftextother_tl
121 \keys_define:nn { zref-vario/current }
122 {
123   vcurrent .code:n =
124   {
125     \tl_set:Nn \l_zrefvario_reftextcurrent_tl {#1}
126     \tl_set:Nn \l_zrefvario_vref_reftextcurrent_tl {#1}
127   } ,
128   vcurrent .value_required:n = true ,
129 }
130 \keys_define:nn { zref-vario/other }
131 {
132   vother .tl_set:N = \l_zrefvario_reftextother_tl ,
133   vother .value_required:n = true ,
134 }

```

See <https://github.com/latex3/latex3/issues/1254>.

```

135 \keys_define:nn { zref-vario }
136 {

```

```

137   ref .inherit:n =
138     { zref-clever/reference } ,
139   ref-oneoptarg .inherit:n =
140     { zref-clever/reference , zref-vario/current } ,
141   ref-twooptargs .inherit:n =
142     { zref-clever/reference , zref-vario/current , zref-vario/other } ,
143   }

```

`\zvLanguageSetup` User interface for setting “strings” (reftext... options) and “formats” (...format options) for each language.

```

\zvLanguageSetup{<language>}{<options>}

144 \tl_new:N \l__zrefvario_setup_language_tl
145 \seq_new:N \g__zrefvario_setup_languages_seq
146 \NewDocumentCommand \zvLanguageSetup { m m }
147 {
148   \AddToHook { begindocument/before }
149   {
150     \group_begin:
151     \zrefclever_language_if_declared:nTF {#1}
152     {
153       \tl_set:Nn \l__zrefvario_setup_language_tl {#1}
154       \keys_set:nn { zref-vario/langsetup } {#2}
155       \seq_gput_right:Ne \g__zrefvario_setup_languages_seq
156       { \__zrefvario_base_lang:n {#1} }
157     }
158     { \msg_warning:nnn { zref-vario } { unknown-language-setup } {#1} }
159   \group_end:
160   }
161 }
162 \msg_new:nnn { zref-vario } { unknown-language-setup }
163 {
164   Language~'#1'~is~unknown~\msg_line_context:..~Can't~set~it~up.~
165   The~language~must~be~declared~for~'zref-clever',~see~its~documentation.
166 }
167 \@onlypreamble \zvLanguageSetup

```

(End of definition for \zvLanguageSetup.)

```

168 \cs_new_protected:Npn \__zrefvario_opt_tl_gset:Nn #1#2
169 {
170   \tl_if_exist:NF #1
171   { \tl_new:N #1 }
172   \tl_gset:Nn #1 {#2}
173 }
174 \cs_generate_variant:Nn \__zrefvario_opt_tl_gset:Nn { cn }
175 \keys_define:nn { zref-vario/langsetup }
176 {
177   reftextfaceafter .code:n =
178   {
179     \__zrefvario_opt_tl_gset:cn
180     {
181       \__zrefvario_ref_opt_name_lang_tl:en
182       { \l__zrefvario_setup_language_tl }

```

```

183         { retextfaceafter }
184     } {#1}
185 },
186 retextfacebefore .code:n =
187 {
188     \__zrefvario_opt_tl_gset:cn
189     {
190         \__zrefvario_ref_opt_name_lang_tl:en
191         { \l__zrefvario_setup_language_tl }
192         { retextfacebefore }
193     } {#1}
194 },
195 retextafter .code:n =
196 {
197     \__zrefvario_opt_tl_gset:cn
198     {
199         \__zrefvario_ref_opt_name_lang_tl:en
200         { \l__zrefvario_setup_language_tl }
201         { retextafter }
202     } {#1}
203 },
204 retextbefore .code:n =
205 {
206     \__zrefvario_opt_tl_gset:cn
207     {
208         \__zrefvario_ref_opt_name_lang_tl:en
209         { \l__zrefvario_setup_language_tl }
210         { retextbefore }
211     } {#1}
212 },
213 retextcurrent .code:n =
214 {
215     \__zrefvario_opt_tl_gset:cn
216     {
217         \__zrefvario_ref_opt_name_lang_tl:en
218         { \l__zrefvario_setup_language_tl }
219         { retextcurrent }
220     } {#1}
221 },
222 retextfaraway .code:n =
223 {
224     \cs_gset_nopar:cpn
225     {
226         \__zrefvario_ref_opt_name_lang_cs:enn
227         { \l__zrefvario_setup_language_tl }
228         { retextfaraway } { n }
229     }
230     ##1
231     {#1}
232 },
233 retextpagerange .code:n =
234 {
235     \cs_gset_nopar:cpn
236     {

```

```

237         \__zrefvario_ref_opt_name_lang_cs:enn
238         { \l__zrefvario_setup_language_tl }
239         { reftextpagerange } { nn }
240     }
241     ##1##2
242     {#1}
243 } ,
244 reftextlabelrange .code:n =
245 {
246     \cs_gset_nopar:cpn
247     {
248         \__zrefvario_ref_opt_name_lang_cs:enn
249         { \l__zrefvario_setup_language_tl }
250         { reftextlabelrange } { nn }
251     }
252     ##1##2
253     {#1}
254 } ,
255 vrefformat .code:n =
256 {
257     \cs_gset_nopar:cpn
258     {
259         \__zrefvario_ref_opt_name_lang_cs:enn
260         { \l__zrefvario_setup_language_tl }
261         { vrefformat } { nn }
262     }
263     ##1##2
264     {#1}
265 } ,
266 vrefrangeformat .code:n =
267 {
268     \cs_gset_nopar:cpn
269     {
270         \__zrefvario_ref_opt_name_lang_cs:enn
271         { \l__zrefvario_setup_language_tl }
272         { vrefrangeformat } { nnn }
273     }
274     ##1##2##3
275     {#1}
276 } ,
277 fullrefformat .code:n =
278 {
279     \cs_gset_nopar:cpn
280     {
281         \__zrefvario_ref_opt_name_lang_cs:enn
282         { \l__zrefvario_setup_language_tl }
283         { fullrefformat } { n }
284     }
285     ##1
286     {#1}
287 } ,
288 }

```

Default reference formats for all languages. These will be used by `__zrefvario_ref_opt_cs_get:nnnN`, unless a language specific setting for the same format has been

set. `\zreftextfaraway` is defined so it can be called with different arguments in `\zvpageref` (where it is alone) and in `\zfullref` (where it is the second of the pair).

```

289 \cs_new_nopar:cpn
290 { \__zrefvario_ref_opt_default_cs:nn { vrefformat } { nn } } #1#2
291 {
292   \zcref {#2} ~
293   \zvpageref [ S=false, typeset=both, vcurrent={#1} ] {#2}
294 }
295 \cs_new_nopar:cpn
296 { \__zrefvario_ref_opt_default_cs:nn { vrefrangeformat } { nnn } } #1#2#3
297 {
298   \reftextlabelrange {#2} {#3} ~
299   \zvpagerefrange [ S=false, typeset=both, vcurrent={#1} ] {#2} {#3}
300 }
301 \cs_new_nopar:cpn
302 { \__zrefvario_ref_opt_default_cs:nn { fullrefformat } { n } } #1
303 {
304   \zcref {#1} ~
305   \zreftextfaraway [ S=false, typeset=both ] {#1}
306 }
307 \NewDocumentCommand \zreftextfaraway { s O { } m }
308 { \zref@wrapper@babel \__zrefvario_zreftextfaraway:nnn {#3} {#1} {#2} }
309 \cs_new_protected:Npn \__zrefvario_zreftextfaraway:nnn #1#2#3
310 {
311   \group_begin:
312   \keys_set:nn { zref-vario/ref } {#3}
313   \bool_if:nT {#2}
314   {
315     \keys_set:nn { zref-vario/ref } { nohyperref }
316     \bool_set_false:N \l__zrefvario_hyperlink_bool
317   }
318   \tl_set:Nn \l__zrefvario_linklabel_tl {#1}
319   \__zrefvario_varioref_setup:
320   \reftextfaraway {#1}
321   \group_end:
322 }

```

Warnings and values for missing strings / unknown languages.

```

323 \group_begin:
324 \tl_set:Nn \l__zrefvario_setup_language_tl { zv_unknown_language }
325 \AddToHook { begindocument/before }
326 {
327   \keys_set:nn { zref-vario/langsetup }
328   {
329     retextfaceafter =
330     {
331       \msg_warning:nnee { zref-vario } { missing-string }
332       { retextfaceafter } { \l__zrefvario_ref_language_tl }
333       \zref@default
334     } ,
335     retextfacebefore =
336     {
337       \msg_warning:nnee { zref-vario } { missing-string }
338       { retextfacebefore } { \l__zrefvario_ref_language_tl }

```

```

339     \zref@default
340   } ,
341   refextafter =
342   {
343     \msg_warning:nnee { zref-vario } { missing-string }
344     { refextafter } { \l__zrefvario_ref_language_tl }
345     \zref@default
346   } ,
347   refextbefore =
348   {
349     \msg_warning:nnee { zref-vario } { missing-string }
350     { refextbefore } { \l__zrefvario_ref_language_tl }
351     \zref@default
352   } ,
353   refextcurrent =
354   {
355     \msg_warning:nnee { zref-vario } { missing-string }
356     { refextcurrent } { \l__zrefvario_ref_language_tl }
357     \zref@default
358   } ,
359   refextfaraway =
360   {
361     \msg_warning:nnee { zref-vario } { missing-string }
362     { refextfaraway } { \l__zrefvario_ref_language_tl }
363     \zref@default
364   } ,
365   refextpagerange =
366   {
367     \msg_warning:nnee { zref-vario } { missing-string }
368     { refextpagerange } { \l__zrefvario_ref_language_tl }
369     \zref@default
370   } ,
371   refextlabelrange =
372   {
373     \msg_warning:nnee { zref-vario } { missing-string }
374     { refextlabelrange } { \l__zrefvario_ref_language_tl }
375     \zref@default
376   } ,
377 }
378 }
379 \group_end:
380 \msg_new:nnn { zref-vario } { missing-string }
381 { Missing~'#1'~string~for~language~'#2'~\msg_line_context:. }

```

A general initial warning in case the language is altogether not set up.

```

382 \AddToHook { begindocument/before }
383 {
384   \AddToHook { begindocument }
385   {
386     \seq_if_in:NeF \g__zrefvario_setup_languages_seq
387     { \__zrefvario_base_lang:e { \l__zrefvario_ref_language_tl } }
388     {
389       \msg_warning:nne { zref-vario } { language-not-setup }
390       { \l__zrefvario_ref_language_tl }

```

```

391     }
392   }
393 }
394 \msg_new:nnn { zref-vario } { language-not-setup }
395 {
396   Language~'#1'~is-not-set-up-for~'zref-vario'.~
397   See~documentation~for~'\iow_char:N\zvLanguageSetup'.
398 }

```

Provide proper hyperlinking for the “nearby” page references. `hyperref` makes `\vref` a *single* link, including both the standard and the page reference (see Ulrike Fischer’s answer and discussion in the comments at <https://tex.stackexchange.com/a/655106>). However, it does not provide the same treatment to `\vpageref`, where there’s no linking at all for nearby pages, to `\vrefrange`, `\vpagerefrange`, or `\vnameref`. In my view, this makes `hyperref` inconsistent. `cleveref` indeed discusses the issue in the “Known Bugs and Work-Arounds” section, mentioning two problems. The first, that the page reference does not honor the `nameinlink` option, which it is actually the same behavior we get from `\vnameref`. The second, that nearby page references are not included in the links or hyperlinked when by themselves. This latter problem may be considered undesirable, and even a “bug”, but at least `cleveref`’s behavior in this regard is consistent.

This is actually tricky and I think the best alternative here is to not even try to make a single link of both references, as `hyperref` does for `\vref`. But rather to offer ways to hyperlink the “nearby” page references separately, which is something that can work for paired references and for standalone page references just as well. `\zvhyperlink` is provided for such purpose, and is meant to be used either in the reference format settings of `\zvLanguageSetup`, or in the `vcurrent` and `vother` options of the reference commands. It only makes a hyperlink if used in one such place (technically, if `\l__zrefvario_linklabel_tl` is not empty), if `\l__zrefvario_hyperlink_bool` is true (to control for starred variants) and if `hyperref` and `zref-hyperref` are loaded, otherwise it passes on its argument untouched.

```

399 \bool_new:N \g__zrefvario_zref_hyperref_loaded_bool
400 \bool_new:N \l__zrefvario_hyperlink_bool
401 \AddToHook { package/zref-hyperref/after }
402 {
403   \AddToHook { package/hyperref/after }
404   {
405     \bool_gset_true:N \g__zrefvario_zref_hyperref_loaded_bool
406     \bool_set_true:N \l__zrefvario_hyperlink_bool
407   }
408 }
409 \tl_new:N \l__zrefvario_linklabel_tl

```

`\zvhyperlink`

```
\zvhyperlink{(text)}
```

```

410 \NewDocumentCommand \zvhyperlink { m }
411 { \__zrefvario_hyperlink:n {#1} }
412 \cs_new_protected:Npn \__zrefvario_hyperlink:n #1
413 {
414   \bool_lazy_all:nTF
415   {
416     { \g__zrefvario_zref_hyperref_loaded_bool }
417     { \l__zrefvario_hyperlink_bool }
418     { ! \tl_if_empty_p:V \l__zrefvario_linklabel_tl }

```

```

419     }
420     {
421     \hyperlink
422     { \zref@extractdefault { \l__zrefvario_linklabel_tl } { anchor } { } }
423     {#1}
424     }
425     {#1}
426 }

```

(End of definition for \zvhyperlink.)

4 User interface

__zrefvario_vref_pagenum:Nn These three small functions are responsible for “connecting” varioref with zref, instead of with the standard referencing system. They are meant to locally replace their varioref counterparts: \vref@pagenum, \vrefpagenum, and \vref@label.

```

427 \cs_new_protected:Npn \__zrefvario_vref_pagenum:Nn #1#2
428 {
429   \exp_args:NNNo \exp_args:NNo \cs_set_nopar:Npn #1
430   { \zref@extractdefault {#2} { \l__zrefvario_pageprop_tl } { ?? } }
431 }
432 \cs_new_protected:Npn \__zrefvario_vrefpagenum:Nn #1#2
433 {
434   \zref@refused {#2}
435   \__zrefvario_vref_pagenum:Nn #1 {#2}
436 }
437 \cs_new_protected:Npn \__zrefvario_vref_label:n #1
438 { \zref@labelbyprops {#1} { \l__zrefvario_pageprop_tl } }

```

(End of definition for __zrefvario_vref_pagenum:Nn, __zrefvario_vrefpagenum:Nn, and __zrefvario_vref_label:n.)

__zrefvario_varioref_setup: Sets things up for varioref to work with zref/zref-clever. It is pretty straightforward, but it is the core of the package. \l__zrefvario_varioref_setup_bool ensures this setup runs only once in case of nested calls to the package’s commands.

```

439 \bool_new:N \l__zrefvario_varioref_setup_bool
440 \cs_new_protected:Npn \__zrefvario_varioref_setup:
441 {
442   \bool_if:NF \l__zrefvario_varioref_setup_bool
443   {
444     \bool_set_true:N \l__zrefvario_varioref_setup_bool
445     \@vrefhandlespacefalse
446     \cs_set_eq:NN \vref@pagenum \__zrefvario_vref_pagenum:Nn
447     \cs_set_eq:NN \vrefpagenum \__zrefvario_vrefpagenum:Nn
448     \cs_set_eq:NN \vref@label \__zrefvario_vref_label:n
449     \__zrefvario_ref_opt_tl_get:enN
450     { \l__zrefvario_ref_language_tl }
451     { retextfaceafter }
452     \retextfaceafter
453     \__zrefvario_ref_opt_tl_get:enN
454     { \l__zrefvario_ref_language_tl }
455     { retextfacebefore }
456     \retextfacebefore

```

```

457     \_zrefvario_ref_opt_tl_get:enN
458     { \l__zrefvario_ref_language_tl }
459     { reftextafter }
460     \reftextafter
461     \_zrefvario_ref_opt_tl_get:enN
462     { \l__zrefvario_ref_language_tl }
463     { reftextbefore }
464     \reftextbefore
465     \_zrefvario_ref_opt_tl_get:enN
466     { \l__zrefvario_ref_language_tl }
467     { reftextcurrent }
468     \reftextcurrent
469     \_zrefvario_ref_opt_cs_get:ennN
470     { \l__zrefvario_ref_language_tl }
471     { reftextfaraway } { n }
472     \reftextfaraway
473     \_zrefvario_ref_opt_cs_get:ennN
474     { \l__zrefvario_ref_language_tl }
475     { reftextpagerange } { nn }
476     \reftextpagerange
477     \_zrefvario_ref_opt_cs_get:ennN
478     { \l__zrefvario_ref_language_tl }
479     { reftextlabelrange } { nn }
480     \reftextlabelrange
481     \_zrefvario_ref_opt_cs_get:ennN
482     { \l__zrefvario_ref_language_tl }
483     { vrefformat } { nn }
484     \vrefformat
485     \_zrefvario_ref_opt_cs_get:ennN
486     { \l__zrefvario_ref_language_tl }
487     { vrefrangeformat } { nnn }
488     \vrefrangeformat
489     \_zrefvario_ref_opt_cs_get:ennN
490     { \l__zrefvario_ref_language_tl }
491     { fullrefformat } { n }
492     \fullrefformat
493   }
494 }

```

(End of definition for _zrefvario_varioref_setup:.)

User commands.

```

\zvref      \zvref{*}[\langle options \rangle]{\langle label \rangle}
495 \NewDocumentCommand \zvref { s 0 { } m }
496 { \zref@wrapper@babel \_zrefvario_zvref:nnn {#3} {#1} {#2} }
497 \cs_new_protected:Npn \_zrefvario_zvref:nnn #1#2#3
498 {
499   \group_begin:
500   \keys_set:nn { zref-vario/ref-oneoptarg } {#3}
501   \bool_if:nT {#2}
502   {
503     \keys_set:nn { zref-vario/ref } { nohyperref }
504     \bool_set_false:N \l__zrefvario_hyperlink_bool
505   }

```

```

506 \tl_set:Nn \l__zrefvario_linklabel_tl {#1}
507 \__zrefvario_varioref_setup:
508 \__zrefvario_vref:Vn \l__zrefvario_vref_reftextcurrent_tl {#1}
509 \group_end:
510 }

```

“Ideally”, we’d be using `\vref` here, but `hyperref` redefines `\vref@star` and `\vr@f`, hard-coding what was supposed to be configurable... , so we use `\vrefformat` instead, which is the original definition of `\vref@star`, and `\vr@f` also boils down to `\vref@star` when `\@vrefhandlespace` is false, which is our case.

```

511 \cs_new_protected:Npn \__zrefvario_vref:nn #1#2
512 { \vrefformat {#1} {#2} }
513 \cs_generate_variant:Nn \__zrefvario_vref:nn { Vn }

```

(End of definition for `\zvref`.)

`\zvpageref`

```

\zvpageref{*}[\options]{\label}
514 \NewDocumentCommand \zvpageref { s 0 { } m }
515 { \zref@wrapper@babel \__zrefvario_zvpageref:nnn {#3} {#1} {#2} }
516 \cs_new_protected:Npn \__zrefvario_zvpageref:nnn #1#2#3
517 {
518 \group_begin:
519 \keys_set:nn { zref-vario/ref-twooptargs } {#3}
520 \bool_if:nT {#2}
521 {
522 \keys_set:nn { zref-vario/ref } { nohyperref }
523 \bool_set_false:N \l__zrefvario_hyperlink_bool
524 }
525 \tl_set:Nn \l__zrefvario_linklabel_tl {#1}
526 \__zrefvario_varioref_setup:
527 \__zrefvario_vpageref:VVn \l__zrefvario_reftextcurrent_tl
528 \l__zrefvario_reftextother_tl {#1}
529 \bool_lazy_and:nnT
530 { \g__zrefvario_zrefcheck_available_bool }
531 { \l__zrefvario_with_vcheck_bool }
532 {
533 \zrefcheck_zrefvario_label:
534 \vref@pagenum \l__zrefvario_tmpa_tl { \the\c@vrcnt @vr }
535 \vref@pagenum \l__zrefvario_tmpb_tl {#1}
536 \tl_if_eq:NNT \l__zrefvario_tmpa_tl \l__zrefvario_tmpb_tl
537 {
538 \zrefcheck_zrefvario_run_check_on_label:Vn
539 \l__zrefvario_vcheck_tl {#1}
540 }
541 }
542 \group_end:
543 }
544 \cs_new_protected:Npn \__zrefvario_vpageref:nnn #1#2#3
545 { \vpageref [{#1}] [#2] {#3} }
546 \cs_generate_variant:Nn \__zrefvario_vpageref:nnn { VVn }

```

(End of definition for `\zvpageref`.)

```

\zvrefrange          \zvrefrange(*)[<options>]{<label>}{<label>}
547 \NewDocumentCommand \zvrefrange { s O { } m m }
548 {
549   \zref@wrapper@babel
550   { \zref@wrapper@babel \__zrefvario_zvrefrange:nnnn {#3} }
551   {#4} {#1} {#2}
552 }
553 \cs_new_protected:Npn \__zrefvario_zvrefrange:nnnn #1#2#3#4
554 {
555   \group_begin:
556   \keys_set:nn { zref-vario/ref-optional } {#4}
557   \bool_if:nT {#3}
558   {
559     \keys_set:nn { zref-vario/ref } { nohyperref }
560     \bool_set_false:N \l__zrefvario_hyperlink_bool
561   }
562   \__zrefvario_varioref_setup:
563   \vpagerefcompare {#1} {#2}
564   { \tl_set:Nn \l__zrefvario_linklabel_tl {#1} } { }
565   \__zrefvario_vrefrange:Vnn \l__zrefvario_reftextcurrent_tl {#1} {#2}
566   \group_end:
567 }
568 \cs_new_protected:Npn \__zrefvario_vrefrange:nnn #1#2#3
569 { \vrefrange [{#1}] {#2} {#3} }
570 \cs_generate_variant:Nn \__zrefvario_vrefrange:nnn { Vnn }

```

(End of definition for \zvrefrange.)

```

\zvpagerefrange          \zvpagerefrange(*)[<options>]{<label>}{<label>}
571 \NewDocumentCommand \zvpagerefrange { s O { } m m }
572 {
573   \zref@wrapper@babel
574   { \zref@wrapper@babel \__zrefvario_zvpagerefrange:nnnn {#3} }
575   {#4} {#1} {#2}
576 }
577 \cs_new_protected:Npn \__zrefvario_zvpagerefrange:nnnn #1#2#3#4
578 {
579   \group_begin:
580   \keys_set:nn { zref-vario/ref-optional } {#4}
581   \bool_if:nT {#3}
582   {
583     \keys_set:nn { zref-vario/ref } { nohyperref }
584     \bool_set_false:N \l__zrefvario_hyperlink_bool
585   }
586   \__zrefvario_varioref_setup:
587   \vpagerefcompare {#1} {#2}
588   { \tl_set:Nn \l__zrefvario_linklabel_tl {#1} } { }
589   \__zrefvario_vpagerefrange:Vnn \l__zrefvario_reftextcurrent_tl {#1} {#2}
590   \bool_lazy_and:nnT
591   { \g__zrefvario_zrefcheck_available_bool }
592   { \l__zrefvario_with_vcheck_bool }
593   {
594     \zrefcheck_zrefvario_label:
595     \vrefpagenum \l__zrefvario_tmpa_tl {#1}

```

```

596     \vrefpagenum \l__zrefvario_tmpb_tl {#2}
597     \tl_if_eq:NNT \l__zrefvario_tmpa_tl \l__zrefvario_tmpb_tl
598     {
599         \vref@pagenum \l__zrefvario_tmpa_tl { \the\c@vrcnt @vr }
600         \tl_if_eq:NNT \l__zrefvario_tmpa_tl \l__zrefvario_tmpb_tl
601         {
602             \zrefcheck_zrefvario_run_check_on_label:Vn
603             \l__zrefvario_vcheck_tl {#1}
604             \zrefcheck_zrefvario_run_check_on_label:Vn
605             \l__zrefvario_vcheck_tl {#2}
606         }
607     }
608 }
609 \group_end:
610 }
611 \cs_new_protected:Npn \__zrefvario_vpagerefrange:nnn #1#2#3
612 { \vpagerefrange [{#1}] {#2} {#3} }
613 \cs_generate_variant:Nn \__zrefvario_vpagerefrange:nnn { Vnn }

```

(End of definition for \zvpagerefrange.)

```

\zfullref     \zfullref{*}[<options>]{<label>}
614 \NewDocumentCommand \zfullref { s O { } m }
615 { \zref@wrapper@babel \__zrefvario_zfullref:nnn {#3} {#1} {#2} }
616 \cs_new_protected:Npn \__zrefvario_zfullref:nnn #1#2#3
617 {
618     \group_begin:
619     \keys_set:nn { zref-vario/ref } {#3}
620     \bool_if:nT {#2}
621     {
622         \keys_set:nn { zref-vario/ref } { nohyperref }
623         \bool_set_false:N \l__zrefvario_hyperlink_bool
624     }
625     \tl_set:Nn \l__zrefvario_linklabel_tl {#1}
626     \__zrefvario_varioref_setup:
627     \fullref {#1}
628     \group_end:
629 }

```

(End of definition for \zfullref.)

5 zref-check integration

Integration with zref-check. `vcheck`, differently from `check`, receives only two values `above` and `below`, since these are the only two checks which make sense for `zref-vario`. This means that it also does not take `\zcheck`'s options, but these can always be passed to `check`. Besides this, `vcheck`'s check should only be done when label(s) and reference are in the same page, that is, when `vcurent` is used. Furthermore, since `varioref` handles the case where the reference crosses page boundaries, we only set one label for the purpose, and this is done at the end of the reference, because that's the point `varioref` itself uses to check if label and reference are in the same page.

```

630 \bool_new:N \g__zrefvario_zrefcheck_available_bool

```



```

631 \bool_new:N \l__zrefvario_with_vcheck_bool
632 \tl_new:N \l__zrefvario_vcheck_tl
633 \AddToHook { begindocument/before }
634 {
635   \IfPackageLoadedTF { zref-check }
636   {
637     \IfPackageAtLeastTF { zref-check } { 2022-02-08 }
638     {
639       \bool_gset_true:N \g__zrefvario_zrefcheck_available_bool
640       \keys_define:nn { zref-vario/current }
641       {
642         vcheck .choices:nn =
643         { above , below }
644         {
645           \bool_set_true:N \l__zrefvario_with_vcheck_bool
646           \tl_set:NV \l__zrefvario_vcheck_tl \l_keys_choice_tl
647         } ,
648       }
649     }
650   {
651     \bool_gset_false:N \g__zrefvario_zrefcheck_available_bool
652     \keys_define:nn { zref-vario/current }
653     {
654       vcheck .code:n =
655       { \msg_warning:nn { zref-vario } { zref-check-unavailable } } ,
656     }
657   }
658 }
659 {
660   \bool_gset_false:N \g__zrefvario_zrefcheck_available_bool
661   \keys_define:nn { zref-vario/current }
662   {
663     vcheck .code:n =
664     { \msg_warning:nn { zref-vario } { zref-check-unavailable } } ,
665   }
666 }
667 }
668 \msg_new:nnn { zref-vario } { zref-check-unavailable }
669 {
670   Option~'vcheck'~is~only~available~when~'zref-check'~is~loaded~
671   and~newer~than~'2022-02-08~v0.2.4'.
672 }

```

6 Languages

Localization for the languages provided by the author, except where otherwise stated. However, I could only do so thanks to `varioref`, in particular for languages I don't really know. So, credits go to the contributors of `varioref`. Of course, if any native speaker would like to review these, or contribute new ones, it is much welcome. Note, however, that since `zref-vario` depends on `zref-clever` and piggybacks on its language infrastructure, it only makes sense to provide localization here for languages already supported by `zref-clever`.

```

673 \zvLanguageSetup { english }
674 {
675     reftextfaceafter =
676         {on~the~\zvhyperlink{\reftextvario{facing}{next}~page}} ,
677     reftextfacebefore =
678         {on~the~\zvhyperlink{\reftextvario{facing}{preceding}~page}} ,
679     reftextafter =
680         {on~the~\zvhyperlink{\reftextvario{following}{next}~page}} ,
681     reftextbefore =
682         {on~the~\zvhyperlink{\reftextvario{preceding}{previous}~page}} ,
683     reftextcurrent =
684         {on~\reftextvario{}{the~}\zvhyperlink{\reftextvario{this}{current}~page}} ,
685     reftextfaraway = {on~\zcpageref{#1}} ,
686     reftextpagerange = {on~\zcpageref[range]{#1,#2}} ,
687     reftextlabelrange = {\zcref[range]{#1,#2}} ,
688 }
689 \zvLanguageSetup { german }
690 {
691     reftextfaceafter = {auf~der~\zvhyperlink{nächsten~Seite}} ,
692     reftextfacebefore = {auf~der~\zvhyperlink{vorherigen~Seite}} ,
693     reftextafter = {auf~der~\zvhyperlink{nächsten~Seite}} ,
694     reftextbefore = {auf~der~\zvhyperlink{vorherigen~Seite}} ,
695     reftextcurrent = {auf~\zvhyperlink{dieser~Seite}} ,
696     reftextfaraway = {auf~\zcpageref[d=D,g=f]{#1}} ,
697     reftextpagerange = {auf~den~\zcpageref[range,d=D,g=f]{#1,#2}} ,
698     reftextlabelrange = {\zcref[range]{#1,#2}} ,
699 }
700 \zvLanguageSetup { french }
701 {
702     reftextfaceafter =
703         {\zvhyperlink{page~\reftextvario{ci-contre}{suivante}}} ,
704     reftextfacebefore =
705         {\zvhyperlink{page~\reftextvario{ci-contre}{précédente}}} ,
706     reftextafter = {\zvhyperlink{page~suivante}} ,
707     reftextbefore = {\zvhyperlink{page~précédente}} ,
708     reftextcurrent = {de~la~\zvhyperlink{présente~page}} ,
709     reftextfaraway = {\zcpageref[g=f]{#1}} ,
710     reftextpagerange = {\zcpageref[range,g=f]{#1,#2}} ,
711     reftextlabelrange = {\zcref[range]{#1,#2}} ,
712 }
713 \zvLanguageSetup { portuguese }
714 {
715     reftextfaceafter =
716         {na~\zvhyperlink{\reftextvario{página-oposta}{próxima-página}}} ,
717     reftextfacebefore =
718         {na~\zvhyperlink{página~\reftextvario{oposta}{anterior}}} ,
719     reftextafter =
720         {na~\zvhyperlink{\reftextvario{página-seguinte}{próxima-página}}} ,
721     reftextbefore =
722         {na~\zvhyperlink{página~\reftextvario{anterior}{precedente}}} ,
723     reftextcurrent = {\zvhyperlink{nesta~página}} ,
724     reftextfaraway = {na~\zcpageref[g=f]{#1}} ,
725     reftextpagerange = {nas~\zcpageref[range,g=f]{#1,#2}} ,

```

```

726   reftextlabelrange = {\zcref[range]{#1,#2}} ,
727   }
728 \zvLanguageSetup { spanish }
729 {
730   reftextfaceafter = {en~la~\zvhyperlink{página-siguiente}} ,
731   reftextfacebefore = {en~la~\zvhyperlink{página-anterior}} ,
732   reftextafter = {en~la~\zvhyperlink{página-siguiente}} ,
733   reftextbefore = {en~la~\zvhyperlink{página-anterior}} ,
734   reftextcurrent = {en~\zvhyperlink{esta~página}} ,
735   reftextfaraway = {en~la~\zcpageref[g=f]{#1}} ,
736   reftextpagerange = {en~las~\zcpageref[range,g=f]{#1,#2}} ,
737   reftextlabelrange = {\zcref[range]{#1,#2}} ,
738 }
739 \zvLanguageSetup { dutch }
740 {
741   reftextfaceafter =
742     {op~de~\zvhyperlink{\reftextvario{rechter-pagina}{pagina-hiernaast}}} ,
743   reftextfacebefore =
744     {op~de~\zvhyperlink{\reftextvario{linker~pagina}{pagina-hiernaast}}} ,
745   reftextafter =
746     {op~de~\zvhyperlink{\reftextvario{volgende-pagina}{pagina-hierna}}} ,
747   reftextbefore =
748     {op~de~\zvhyperlink{\reftextvario{vorige~pagina}{pagina-hiervoor}}} ,
749   reftextcurrent = {op~\zvhyperlink{deze~pagina}} ,
750   reftextfaraway = {op~\zcpageref[g=f]{#1}} ,
751   reftextpagerange = {op~\zcpageref[range,g=f]{#1,#2}} ,
752   reftextlabelrange = {\zcref[range]{#1,#2}} ,
753 }
    Italian localization improved thanks to Matteo Ferrigato (at issue #1)
754 \zvLanguageSetup { italian }
755 {
756   reftextfaceafter =
757     {nella~\zvhyperlink{pagina~\reftextvario{a-fianco}{successiva}}} ,
758   reftextfacebefore =
759     {nella~\zvhyperlink{pagina~\reftextvario{a-fianco}{precedente}}} ,
760   reftextafter =
761     {nella~\zvhyperlink{pagina~\reftextvario{segunte}{successiva}}} ,
762   reftextbefore = {nella~\zvhyperlink{pagina~precedente}} ,
763   reftextcurrent = {in~\zvhyperlink{questa~pagina}} ,
764   reftextfaraway = {a~\zcpageref[g=f]{#1}} ,
765   reftextpagerange = {nelle~\zcpageref[range,g=f]{#1,#2}} ,
766   reftextlabelrange = {\zcref[range]{#1,#2}} ,
767 }
768 </package>

```

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