

# The hyphsubst package

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## Abstract

A T<sub>E</sub>X format file may include alternative hyphenation patterns for a language with a different name. If the naming convention follows babel's rules, then the hyphenation patterns for a language can be replaced by the alternative hyphenation patterns, provided in the format file.

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\*Please report any issues at <https://github.com/ho-tex/oberdiek/issues>

# 1 Documentation

## 1.1 In short

The package is an experimental package that allows the substitution of hyphenation patterns, example:

```
\RequirePackage[ngerman=ngerman-x-20080601]{hyphsubst}
\documentclass{article}
\usepackage[ngerman]{babel}
```

The patterns `ngerman` are replaced by the patterns `ngerman-x-20080601`. The format must contain these patterns and should use the naming scheme of either `babel`'s `language.dat` or `etex.src`'s `language.def`.

## 1.2 Longer version

Assume the format may contain the following hyphenation patterns (excerpt from `language.dat`):

```
...
ngerman dehyphn.tex
ngerman-x-20071231 dehyphn-x-20071231
ngerman-x-20080601 dehyphn-x-20080601
=ngerman-x-latest % alias for ngerman-x-20080601
...
```

The patterns that contain `-x-` are experimental new patterns for `ngerman`. However, package `babel` does not provide the use of patterns that do not have the same name as the used language (dialect). The `babel` system remembers patterns in macros: `\l@<name>`.  $\epsilon$ -TEX's `etex.src` uses `\lang@<name>` instead. In the following we use `babel`'s naming scheme, but `etex.src`'s naming scheme is supported, too.

This package `hyphsubst` solves the problem by redefining the macro `\l@<name>` to use other patterns.

`\HyphSubstLet {\<nameA>} {\<nameB>}`

`\l@<nameA>` now has the same meaning as `\l@<nameB>`. The patterns for `nameB` must exist. If the patterns for `nameA` exist, then they will be overwritten to use the patterns for `nameB`. Example:

```
\documentclass{article}
\usepackage{hyphsubst}
\HyphSubstLet{ngerman}{ngerman-x-20080601}
\usepackage[ngerman]{babel}
```

Now the patterns `ngerman-x-20080601` are be used.

Or if you want to compare hyphenations:

```
\documentclass{article}
\usepackage{hyphsubst}
% save original patterns for ngerman in ngerman-saved
\HyphSubstLet{ngerman-saved}{ngerman}
\usepackage[ngerman]{babel}
\begin{document}
We start with the original patterns for ngerman.
\HyphSubstLet{ngerman}{ngerman-x-latest}%
```

```

Now we are using ngerman-x-latest.
\HyphSubstLet{ngerman}{ngerman-saved}%
Again we are using the original patterns.
\end{document}

```

`\HyphSubstIfExists {<name>} {<then>} {<else>}`

Tests if patterns with name *<name>* exist and execute *<then>* in case of success and *<else>* otherwise.

### 1.3 L<sup>A</sup>T<sub>E</sub>X

The package can also be loaded before `\documentclass`:

```

\RequirePackage[ngerman=ngerman-x-20080601]{hyphsubst}
\documentclass{article}
...

```

This allows to put the package in a format file.

Package options are interpreted as ‘let’ assignments and passed to macro `\HyphSubstLet`:

```
\usepackage[ngerman=ngerman-x-20080601]{hyphsubst}
```

The part before the equal sign is the first argument for `\HyphSubstLet` and the part after the equal sign forms the second argument:

```
\HyphSubstLet{ngerman}{ngerman-x-20080601}
```

Note, this only works for direct package options. Global options are ignored.

### 1.4 plain T<sub>E</sub>X

The package can be loaded and used with plain T<sub>E</sub>X, e.g.:

```

\input hyphsubst.sty
\HyphSubstLet{ngerman}{ngerman-x-latest}

```

## 2 Implementation

```
1 < *package>
```

### 2.1 Reload check and package identification

Reload check, especially if the package is not used with L<sup>A</sup>T<sub>E</sub>X.

```

2 \begingroup\catcode61\catcode48\catcode32=10\relax%
3 \catcode13=5 % ^~M
4 \endlinechar=13 %
5 \catcode35=6 % #
6 \catcode39=12 % '
7 \catcode44=12 % ,
8 \catcode45=12 % -
9 \catcode46=12 % .
10 \catcode58=12 % :
11 \catcode64=11 % @
12 \catcode123=1 % {
13 \catcode125=2 % }
14 \expandafter\let\expandafter\x\csname ver@hyphsubst.sty\endcsname

```

```

15 \ifx\x\relax % plain-TeX, first loading
16 \else
17   \def\empty{}%
18   \ifx\x\empty % LaTeX, first loading,
19     % variable is initialized, but \ProvidesPackage not yet seen
20   \else
21     \expandafter\ifx\csname PackageInfo\endcsname\relax
22       \def\x#1#2{%
23         \immediate\write-1{Package #1 Info: #2.}%
24       }%
25     \else
26       \def\x#1#2{\PackageInfo{#1}{#2, stopped}}%
27     \fi
28     \x{hyphsubst}{The package is already loaded}%
29   \aftergroup\endinput
30 \fi
31 \fi
32 \endgroup%

```

Package identification:

```

33 \begingroup\catcode61\catcode48\catcode32=10\relax%
34 \catcode13=5 % ^M
35 \endlinechar=13 %
36 \catcode35=6 % #
37 \catcode39=12 % '
38 \catcode40=12 % (
39 \catcode41=12 % )
40 \catcode44=12 % ,
41 \catcode45=12 % -
42 \catcode46=12 % .
43 \catcode47=12 % /
44 \catcode58=12 % :
45 \catcode64=11 % @
46 \catcode91=12 % [
47 \catcode93=12 % ]
48 \catcode123=1 % {
49 \catcode125=2 % }
50 \expandafter\ifx\csname ProvidesPackage\endcsname\relax
51   \def\x#1#2#3[#4]{\endgroup
52     \immediate\write-1{Package: #3 #4}%
53     \xdef#1{#4}%
54   }%
55 \else
56   \def\x#1#2[#3]{\endgroup
57     #2[#3]}%
58     \ifx#1\@undefined
59       \xdef#1{#3}%
60     \fi
61     \ifx#1\relax
62       \xdef#1{#3}%
63     \fi
64   }%
65 \fi
66 \expandafter\x\csname ver@hyphsubst.sty\endcsname
67 \ProvidesPackage{hyphsubst}%
68 [2016/05/16 v0.3 Substitute hyphenation patterns (H0)]%
69 \begingroup\catcode61\catcode48\catcode32=10\relax%
70 \catcode13=5 % ^M

```

```

71 \endlinechar=13 %
72 \catcode123=1 % {
73 \catcode125=2 % }
74 \catcode64=11 % @
75 \def\x{\endgroup
76   \expandafter\edef\csname HyphSubst@AtEnd\endcsname{%
77     \endlinechar=\the\endlinechar\relax
78     \catcode13=\the\catcode13\relax
79     \catcode32=\the\catcode32\relax
80     \catcode35=\the\catcode35\relax
81     \catcode61=\the\catcode61\relax
82     \catcode64=\the\catcode64\relax
83     \catcode123=\the\catcode123\relax
84     \catcode125=\the\catcode125\relax
85   }%
86 }%
87 \x\catcode61\catcode48\catcode32=10\relax%
88 \catcode13=5 % ^^M
89 \endlinechar=13 %
90 \catcode35=6 % #
91 \catcode64=11 % @
92 \catcode123=1 % {
93 \catcode125=2 % }
94 \def\TMP@EnsureCode#1#2{%
95   \edef\HyphSubst@AtEnd{%
96     \HyphSubst@AtEnd
97     \catcode#1=\the\catcode#1\relax
98   }%
99   \catcode#1=#2\relax
100 }
101 \TMP@EnsureCode{39}{12}% '
102 \TMP@EnsureCode{46}{12}% .
103 \TMP@EnsureCode{47}{12}% /
104 \TMP@EnsureCode{58}{12}% :
105 \TMP@EnsureCode{91}{12}% [
106 \TMP@EnsureCode{93}{12}% ]
107 \TMP@EnsureCode{96}{12}% '
108 \edef\HyphSubst@AtEnd{\HyphSubst@AtEnd\noexpand\endinput}

```

## 2.2 Package

```

109 \begingroup\expandafter\expandafter\expandafter\endgroup
110 \expandafter\ifx\csname RequirePackage\endcsname\relax
111   \input infwarerr.sty\relax
112 \else
113   \RequirePackage{infwarerr}[2007/09/09]%
114 \fi

\HyphSubst@l

115 \begingroup\expandafter\expandafter\expandafter\endgroup
116 \expandafter\ifx\csname et@xlang\endcsname\relax
117   \def\HyphSubst@l{1@}%
118 \else
119   \def\HyphSubst@l{lang@}%
120 \fi

\HyphSubstLet

121 \def\HyphSubstLet#1#2{%

```

```

122 \beginngroup
123 \def\x{%
124 \expandafter\ifx\csname\HyphSubst@l#2\endcsname\relax
125 \@PackageError{hyphsubst}{Unknown pattern '#2'}\@ehc
126 \else
127 \def\lmsg{%
128 \expandafter\ifx\csname\HyphSubst@l#1\endcsname\relax
129 \edef\msg{%
130 New: \expandafter\string\csname\HyphSubst@l#1\endcsname
131 \noexpand\MessageBreak
132 }%
133 \else
134 \edef\msg{%
135 Redefined: \expandafter\string\csname\HyphSubst@l#1\endcsname
136 \noexpand\MessageBreak
137 old value: \number\csname\HyphSubst@l#1\endcsname
138 \noexpand\MessageBreak
139 }%
140 \ifnum\csname\HyphSubst@l#1\endcsname=\language
141 \edef\x{%
142 \noexpand\language=%
143 \number\csname\HyphSubst@l#2\endcsname\relax
144 }%
145 \edef\lmsg{%
146 \noexpand\MessageBreak
147 \string\language\noexpand\space updated%
148 }%
149 \fi
150 \fi
151 \expandafter\global\expandafter\let
152 \csname\HyphSubst@l#1\expandafter\endcsname
153 \csname\HyphSubst@l#2\endcsname
154 \@PackageInfo{hyphsubst}{%
155 \msg
156 new value: \number\csname\HyphSubst@l#1\endcsname
157 \lmsg
158 }%
159 \fi
160 \expandafter\endgroup\x
161 }

```

\HyphSubstIfExists

```

162 \def\HyphSubstIfExists#1{%
163 \beginngroup\expandafter\expandafter\expandafter\endgroup
164 \expandafter\ifx\csname\HyphSubst@l#1\endcsname\relax
165 \expandafter\@secondoftwo
166 \else
167 \expandafter\@firstoftwo
168 \fi
169 }

```

\@firstoftwo

```

170 \expandafter\ifx\csname @firstoftwo\endcsname\relax
171 \long\def\@firstoftwo#1#2{#1}%
172 \fi

```

\@secondoftwo

```

173 \expandafter\ifx\csname @secondoftwo\endcsname\relax

```

```

174 \long\def\@secondoftwo#1#2{#2}%
175 \fi

176 \begingroup\expandafter\expandafter\expandafter\endgroup
177 \expandafter\ifx\csname documentclass\endcsname\relax
178 \expandafter\HyphSubst@AtEnd
179 \fi%

180 \DeclareOption*{%
181 \expandafter\HyphSubst@Option\CurrentOption==\relax
182 }
183 \def\HyphSubst@Option#1=#2=#3\relax{%
184 \HyphSubstLet{#1}{#2}%
185 }
186 \ProcessOptions*\relax

187 \HyphSubst@AtEnd%
188 \</package>

```

### 3 Test

#### 3.1 Catcode checks for loading

```

189 \<{*test1}

190 \catcode'\{=1 %
191 \catcode'\}=2 %
192 \catcode'\#=6 %
193 \catcode'\@=11 %
194 \expandafter\ifx\csname count@\endcsname\relax
195 \countdef\count@=255 %
196 \fi

197 \expandafter\ifx\csname @gobble\endcsname\relax
198 \long\def\@gobble#1{%
199 \fi

200 \expandafter\ifx\csname @firstofone\endcsname\relax
201 \long\def\@firstofone#1{#1}%
202 \fi

203 \expandafter\ifx\csname loop\endcsname\relax
204 \expandafter\@firstofone
205 \else
206 \expandafter\@gobble
207 \fi

208 {%
209 \def\loop#1\repeat{%
210 \def\body{#1}%
211 \iterate
212 }%
213 \def\iterate{%
214 \body
215 \let\next\iterate
216 \else
217 \let\next\relax
218 \fi
219 \next
220 }%
221 \let\repeat=\fi
222 }%
223 \def\RestoreCatcodes{}
224 \count@=0 %

```

```

225 \loop
226   \edef\RestoreCatcodes{%
227     \RestoreCatcodes
228     \catcode\the\count@=\the\catcode\count@\relax
229   }%
230 \ifnum\count@<255 %
231   \advance\count@ 1 %
232 \repeat
233
234 \def\RangeCatcodeInvalid#1#2{%
235   \count@=#1\relax
236   \loop
237     \catcode\count@=15 %
238     \ifnum\count@<#2\relax
239       \advance\count@ 1 %
240     \repeat
241 }
242 \def\RangeCatcodeCheck#1#2#3{%
243   \count@=#1\relax
244   \loop
245     \ifnum#3=\catcode\count@
246     \else
247       \errmessage{%
248         Character \the\count@\space
249         with wrong catcode \the\catcode\count@\space
250         instead of \number#3%
251       }%
252     \fi
253     \ifnum\count@<#2\relax
254       \advance\count@ 1 %
255     \repeat
256 }
257 \def\space{ }
258 \expandafter\ifx\csname LoadCommand\endcsname\relax
259   \def\LoadCommand{\input hyphsubst.sty\relax}%
260 \fi
261 \def\Test{%
262   \RangeCatcodeInvalid{0}{47}%
263   \RangeCatcodeInvalid{58}{64}%
264   \RangeCatcodeInvalid{91}{96}%
265   \RangeCatcodeInvalid{123}{255}%
266   \catcode'\@=12 %
267   \catcode'\=0 %
268   \catcode'\%=14 %
269   \LoadCommand
270   \RangeCatcodeCheck{0}{36}{15}%
271   \RangeCatcodeCheck{37}{37}{14}%
272   \RangeCatcodeCheck{38}{47}{15}%
273   \RangeCatcodeCheck{48}{57}{12}%
274   \RangeCatcodeCheck{58}{63}{15}%
275   \RangeCatcodeCheck{64}{64}{12}%
276   \RangeCatcodeCheck{65}{90}{11}%
277   \RangeCatcodeCheck{91}{91}{15}%
278   \RangeCatcodeCheck{92}{92}{0}%
279   \RangeCatcodeCheck{93}{96}{15}%
280   \RangeCatcodeCheck{97}{122}{11}%
281   \RangeCatcodeCheck{123}{255}{15}%
282   \RestoreCatcodes

```



```

283 }
284 \Test
285 \csname @@end\endcsname
286 \end
287 </test1>

```

## 3.2 Main tests

```

288 <*test2>
289 \input hyphsubst.sty\relax
290
291 \catcode'\@=11\relax
292 \ifx\et@xlang\undefined
293   \def\l#1{\csname l@#1\endcsname}%
294 \else
295   \def\l#1{\csname lang@#1\endcsname}%
296 \fi
297 \def\Check#1#2{%
298   \ifnum#1=#2\relax
299   \else
300     \@PackageError{test}{Wrong number: #1 <> #2}\@ehc
301   \fi
302 }
303
304 \language=0\relax
305 \HyphSubstLet{ZeroSaved}{ngerman}
306 \Check{\l{USenglish}}{0}%
307 \HyphSubstLet{USenglish}{ngerman}
308 \Check{\l{USenglish}}{\l{ngerman}}
309 \ifnum\l{USenglish}>0 %
310 \else
311   \@PackageError{test}{\string\language\space is not updated}\@ehc
312 \fi
313 \HyphSubstLet{german}{ngerman}
314 \Check{\l{german}}{\l{ngerman}}
315 \Check{\l{USenglish}}{\l{ngerman}}
316 \csname @@end\endcsname\end
317 </test2>

```

## 4 Installation

### 4.1 Download

**Package.** This package is available on CTAN<sup>1</sup>:

[CTAN:macros/latex/contrib/oberdiek/hyphsubst.dtx](http://ctan.org/macros/latex/contrib/oberdiek/hyphsubst.dtx) The source file.

[CTAN:macros/latex/contrib/oberdiek/hyphsubst.pdf](http://ctan.org/macros/latex/contrib/oberdiek/hyphsubst.pdf) Documentation.

**Bundle.** All the packages of the bundle ‘oberdiek’ are also available in a TDS compliant ZIP archive. There the packages are already unpacked and the documentation files are generated. The files and directories obey the TDS standard.

[CTAN:install/macros/latex/contrib/oberdiek.tds.zip](http://ctan.org/install/macros/latex/contrib/oberdiek.tds.zip)

*TDS* refers to the standard “A Directory Structure for  $\text{\TeX}$  Files” ([CTAN:tds/tds.pdf](http://ctan.org/tds/tds.pdf)). Directories with `texmf` in their name are usually organized this way.

---

<sup>1</sup><http://ctan.org/pkg/hyphsubst>

## 4.2 Bundle installation

**Unpacking.** Unpack the `oberdiek.tds.zip` in the TDS tree (also known as `texmf` tree) of your choice. Example (linux):

```
unzip oberdiek.tds.zip -d ~/texmf
```

**Script installation.** Check the directory `TDS:scripts/oberdiek/` for scripts that need further installation steps. Package `attachfile2` comes with the Perl script `pdfatfi.pl` that should be installed in such a way that it can be called as `pdfatfi`. Example (linux):

```
chmod +x scripts/oberdiek/pdfatfi.pl
cp scripts/oberdiek/pdfatfi.pl /usr/local/bin/
```

## 4.3 Package installation

**Unpacking.** The `.dtx` file is a self-extracting `docstrip` archive. The files are extracted by running the `.dtx` through plain  $\TeX$ :

```
tex hyphsubst.dtx
```

**TDS.** Now the different files must be moved into the different directories in your installation TDS tree (also known as `texmf` tree):

<code>hyphsubst.sty</code>	$\rightarrow$ <code>tex/generic/oberdiek/hyphsubst.sty</code>
<code>hyphsubst.pdf</code>	$\rightarrow$ <code>doc/latex/oberdiek/hyphsubst.pdf</code>
<code>test/hyphsubst-test1.tex</code>	$\rightarrow$ <code>doc/latex/oberdiek/test/hyphsubst-test1.tex</code>
<code>test/hyphsubst-test2.tex</code>	$\rightarrow$ <code>doc/latex/oberdiek/test/hyphsubst-test2.tex</code>
<code>hyphsubst.dtx</code>	$\rightarrow$ <code>source/latex/oberdiek/hyphsubst.dtx</code>

If you have a `docstrip.cfg` that configures and enables `docstrip`'s TDS installing feature, then some files can already be in the right place, see the documentation of `docstrip`.

## 4.4 Refresh file name databases

If your  $\TeX$  distribution (`te $\TeX$` , `mik $\TeX$` , ...) relies on file name databases, you must refresh these. For example, `te $\TeX$`  users run `texhash` or `mktextlsr`.

## 4.5 Some details for the interested

**Attached source.** The PDF documentation on CTAN also includes the `.dtx` source file. It can be extracted by AcrobatReader 6 or higher. Another option is `pdftk`, e.g. unpack the file into the current directory:

```
pdftk hyphsubst.pdf unpack_files output .
```

**Unpacking with  $\LaTeX$ .** The `.dtx` chooses its action depending on the format:

**plain  $\TeX$ :** Run `docstrip` and extract the files.

**$\LaTeX$ :** Generate the documentation.

If you insist on using  $\LaTeX$  for `docstrip` (really, `docstrip` does not need  $\LaTeX$ ), then inform the autodetect routine about your intention:

```
latex \let\install=y\input{hyphsubst.dtx}
```

Do not forget to quote the argument according to the demands of your shell.

**Generating the documentation.** You can use both the `.dtx` or the `.drv` to generate the documentation. The process can be configured by the configuration file `ltxdoc.cfg`. For instance, put this line into this file, if you want to have A4 as paper format:

```
\PassOptionsToClass{a4paper}{article}
```

An example follows how to generate the documentation with pdfL<sup>A</sup>T<sub>E</sub>X:

```
pdflatex hyphsubst.dtx
makeindex -s gind.ist hyphsubst.idx
pdflatex hyphsubst.dtx
makeindex -s gind.ist hyphsubst.idx
pdflatex hyphsubst.dtx
```

## 5 Catalogue

The following XML file can be used as source for the [T<sub>E</sub>X Catalogue](#). The elements `caption` and `description` are imported from the original XML file from the Catalogue. The name of the XML file in the Catalogue is `hyphsubst.xml`.

```
318 (*catalogue)
319 <?xml version='1.0' encoding='us-ascii'?>
320 <!DOCTYPE entry SYSTEM 'catalogue.dtd'>
321 <entry datestamp='$Date$' modifier='$Author$' id='hyphsubst'>
322   <name>hyphsubst</name>
323   <caption>Substitute hyphenation patterns.</caption>
324   <authorref id='auth:oberdiek'/>
325   <copyright owner='Heiko Oberdiek' year='2008'/>
326   <license type='lppl1.3'/>
327   <version number='0.3'/>
328   <description>
329     A TeX format file may include alternative hyphenation patterns
330     for a language with a different name. If the naming convention
331     follows <xref refid='babel'>babel&#x2019;s</xref> rules, then the
332     hyphenation patterns
333     for a language can be replaced by the alternative hyphenation patterns,
334     provided in the format file.
335     <p/>
336     The package is part of the <xref refid='oberdiek'>oberdiek</xref>
337     bundle.
338   </description>
339   <documentation details='Package documentation'
340     href='ctan:/macros/latex/contrib/oberdiek/hyphsubst.pdf'/>
341   <ctan file='true' path='/macros/latex/contrib/oberdiek/hyphsubst.dtx'/>
342   <miktex location='oberdiek'/>
343   <texlive location='oberdiek'/>
344   <install path='/macros/latex/contrib/oberdiek/oberdiek.tds.zip'/>
345 </entry>
346 </catalogue>
```

## 6 History

[2008/06/07 v0.1]

- First public version.

[2008/06/09 v0.2]

- Support for  $\varepsilon$ -TeX's `language.def` added.
- Fix for undefined `\lmsg`.

[2016/05/16 v0.3]

- Documentation updates.

## 7 Index

Numbers written in *italic* refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; plain numbers refer to the code lines where the entry is used.

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