

# The hyphsubst package

Heiko Oberdiek  
<oberdiek@uni-freiburg.de>

2008/06/09 v0.2

## Abstract

A  $\text{\TeX}$  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.

## Contents

<b>1</b>	<b>Documentation</b>	<b>1</b>
1.1	In short	1
1.2	Longer version	2
1.3	$\text{\LaTeX}$	2
1.4	plain- $\text{\TeX}$	3
<b>2</b>	<b>Implementation</b>	<b>3</b>
2.1	Reload check and package identification	3
2.2	Package	4
<b>3</b>	<b>Test</b>	<b>6</b>
3.1	Catcode checks for loading	6
3.2	Main tests	7
<b>4</b>	<b>Installation</b>	<b>8</b>
4.1	Download	8
4.2	Bundle installation	8
4.3	Package installation	9
4.4	Refresh file name databases	9
4.5	Some details for the interested	9
<b>5</b>	<b>History</b>	<b>10</b>
	[2008/06/07 v0.1]	10
	[2008/06/09 v0.2]	10
<b>6</b>	<b>Index</b>	<b>10</b>

## 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>`.  $\varepsilon$ -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-TeX

The package can be loaded and used with plain-TeX, 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
3 \catcode44 12 % ,
4 \catcode45 12 % -
5 \catcode46 12 % .
6 \catcode58 12 % :
7 \catcode64 11 % @
8 \catcode123 1 % {
9 \catcode125 2 % }
10 \expandafter\let\expandafter\x\csname ver@hyphsubst.sty\endcsname
11 \ifx\x\relax % plain-TeX, first loading
12 \else
13 \def\empty{}%
14 \ifx\x\empty % LaTeX, first loading,
15 % variable is initialized, but \ProvidesPackage not yet seen
16 \else
17 \catcode35 6 % #
18 \expandafter\ifx\csname PackageInfo\endcsname\relax
19 \def\x#1#2{%
20 \immediate\write-1{Package #1 Info: #2.}%
21 }%
22 \else
23 \def\x#1#2{\PackageInfo{#1}{#2, stopped}}%
24 \fi
25 \x{hyphsubst}{The package is already loaded}%
26 \aftergroup\endinput
27 \fi
28 \fi
29 \endgroup

```

Package identification:

```

30 \begingroup
31 \catcode35 6 % #
32 \catcode40 12 % (

```

```

33 \catcode41 12 % )
34 \catcode44 12 % ,
35 \catcode45 12 % -
36 \catcode46 12 % .
37 \catcode47 12 % /
38 \catcode58 12 % :
39 \catcode64 11 % @
40 \catcode91 12 % [
41 \catcode93 12 % ]
42 \catcode123 1 % {
43 \catcode125 2 % }
44 \expandafter\ifx\csname ProvidesPackage\endcsname\relax
45   \def\x#1#2#3[#4]{\endgroup
46     \immediate\write-1{Package: #3 #4}%
47     \xdef#1{#4}%
48   }%
49 \else
50   \def\x#1#2[#3]{\endgroup
51     #2[{#3}]%
52     \ifx#1\@undefined
53       \xdef#1{#3}%
54     \fi
55     \ifx#1\relax
56       \xdef#1{#3}%
57     \fi
58   }%
59 \fi
60 \expandafter\x\csname ver@hyphsubst.sty\endcsname
61 \ProvidesPackage{hyphsubst}%
62 [2008/06/09 v0.2 Substitute hyphenation patterns (H0)]
63 \begingroup
64 \catcode123 1 % {
65 \catcode125 2 % }
66 \def\x{\endgroup
67   \expandafter\edef\csname HyphSubst@AtEnd\endcsname{%
68     \catcode35 \the\catcode35\relax
69     \catcode64 \the\catcode64\relax
70     \catcode123 \the\catcode123\relax
71     \catcode125 \the\catcode125\relax
72   }%
73 }%
74 \x
75 \catcode35 6 % #
76 \catcode64 11 % @
77 \catcode123 1 % {
78 \catcode125 2 % }
79 \def\TMP@EnsureCode#1#2{%
80   \edef\HyphSubst@AtEnd{%
81     \HyphSubst@AtEnd
82     \catcode#1 \the\catcode#1\relax
83   }%
84   \catcode#1 #2\relax
85 }
86 \TMP@EnsureCode{39}{12}% '
87 \TMP@EnsureCode{46}{12}% .
88 \TMP@EnsureCode{47}{12}% /
89 \TMP@EnsureCode{58}{12}% :
90 \TMP@EnsureCode{61}{12}% =
91 \TMP@EnsureCode{96}{12}% ‘

```

## 2.2 Package

```

92 \begingroup\expandafter\expandafter\expandafter\endgroup
93 \expandafter\ifx\csname RequirePackage\endcsname\relax
94   \input infwarerr.sty\relax
95 \else
96   \RequirePackage{infwarerr}[2007/09/09]%
97 \fi

```

\HyphSubst@l

```

98 \begingroup\expandafter\expandafter\expandafter\endgroup
99 \expandafter\ifx\csname et@xlang\endcsname\relax
100   \def\HyphSubst@l{1@}%
101 \else
102   \def\HyphSubst@l{lang@}%
103 \fi

```

\HyphSubstLet

```

104 \def\HyphSubstLet#1#2{%
105   \begingroup
106     \def\x{%
107       \expandafter\ifx\csname\HyphSubst@l#2\endcsname\relax
108         \@PackageError{hyphsubst}{Unknown pattern ‘#2’}\@ehc
109       \else
110         \def\lmsg{%
111           \expandafter\ifx\csname\HyphSubst@l#1\endcsname\relax
112             \edef\msg{%
113               New: \expandafter\string\csname\HyphSubst@l#1\endcsname
114               \noexpand\MessageBreak
115             }%
116           \else
117             \edef\msg{%
118               Redefined: \expandafter\string\csname\HyphSubst@l#1\endcsname
119               \noexpand\MessageBreak
120               old value: \number\csname\HyphSubst@l#1\endcsname
121               \noexpand\MessageBreak
122             }%
123             \ifnum\csname\HyphSubst@l#1\endcsname=\language
124               \edef\x{%
125                 \noexpand\language=%
126                 \number\csname\HyphSubst@l#2\endcsname\relax
127               }%
128               \edef\lmsg{%
129                 \noexpand\MessageBreak
130                 \string\language\noexpand\space updated%
131               }%
132             \fi
133           \fi
134           \expandafter\global\expandafter\let
135             \csname\HyphSubst@l#1\expandafter\endcsname
136             \csname\HyphSubst@l#2\endcsname
137           \@PackageInfo{hyphsubst}{%
138             \msg
139             new value: \number\csname\HyphSubst@l#1\endcsname
140             \lmsg
141           }%
142         \fi
143       \expandafter\endgroup\x
144 }

```

\HyphSubstIfExists

```

145 \def\HyphSubstIfExists#1{%
146   \begingroup\expandafter\expandafter\expandafter\endgroup
147   \expandafter\ifx\csname\HyphSubst@l#1\endcsname\relax

```

```

148     \expandafter\@secondoftwo
149   \else
150     \expandafter\@firstoftwo
151   \fi
152 }

\@firstoftwo

153 \expandafter\ifx\csname @firstoftwo\endcsname\relax
154   \long\def\@firstoftwo#1#2{#1}%
155 \fi

\@secondoftwo

156 \expandafter\ifx\csname @secondoftwo\endcsname\relax
157   \long\def\@secondoftwo#1#2{#2}%
158 \fi

159 \begingroup\expandafter\expandafter\expandafter\endgroup
160 \expandafter\ifx\csname documentclass\endcsname\relax
161   \HyphSubst@AtEnd
162   \expandafter\endinput
163 \fi

164 \DeclareOption*{%
165   \expandafter\HyphSubst@Option\CurrentOption==\relax
166 }
167 \def\HyphSubst@Option#1=#2=#3\relax{%
168   \HyphSubstLet{#1}{#2}%
169 }
170 \ProcessOptions*\relax
171 \HyphSubst@AtEnd
172 \end{package}

```

## 3 Test

### 3.1 Catcode checks for loading

```

173 \test1\
174 \catcode'\{=1 %
175 \catcode'\}=2 %
176 \catcode'\#=6 %
177 \catcode'\@=11 %
178 \expandafter\ifx\csname count@\endcsname\relax
179   \countdef\count@=255 %
180 \fi
181 \expandafter\ifx\csname @gobble\endcsname\relax
182   \long\def\@gobble#1{}%
183 \fi
184 \expandafter\ifx\csname @firstofone\endcsname\relax
185   \long\def\@firstofone#1{#1}%
186 \fi
187 \expandafter\ifx\csname loop\endcsname\relax
188   \expandafter\@firstofone
189 \else
190   \expandafter\@gobble
191 \fi
192 {%
193   \def\loop#1\repeat{%
194     \def\body{#1}%
195     \iterate
196   }%
197   \def\iterate{%

```

```

198     \body
199     \let\next\iterate
200     \else
201     \let\next\relax
202     \fi
203     \next
204 }%
205 \let\repeat=\fi
206 }%
207 \def\RestoreCatcodes{
208 \count@=0 %
209 \loop
210   \edef\RestoreCatcodes{%
211     \RestoreCatcodes
212     \catcode\the\count@=\the\catcode\count@\relax
213   }%
214   \ifnum\count@<255 %
215     \advance\count@ 1 %
216   \repeat
217
218 \def\RangeCatcodeInvalid#1#2{%
219   \count@=#1\relax
220   \loop
221     \catcode\count@=15 %
222     \ifnum\count@<#2\relax
223       \advance\count@ 1 %
224     \repeat
225 }
226 \expandafter\ifx\csname LoadCommand\endcsname\relax
227   \def\LoadCommand{\input hyphsubst.sty\relax}%
228 \fi
229 \def\Test{%
230   \RangeCatcodeInvalid{0}{47}%
231   \RangeCatcodeInvalid{58}{64}%
232   \RangeCatcodeInvalid{91}{96}%
233   \RangeCatcodeInvalid{123}{255}%
234   \catcode'\@=12 %
235   \catcode'\=0 %
236   \catcode'\{=1 %
237   \catcode'\}=2 %
238   \catcode'\#=6 %
239   \catcode'\[=12 %
240   \catcode'\]=12 %
241   \catcode'\%=14 %
242   \catcode'\ =10 %
243   \catcode\13=5 %
244   \LoadCommand
245   \RestoreCatcodes
246 }
247 \Test
248 \csname @@end\endcsname
249 \end
250 </test1>

```

## 3.2 Main tests

```

251 <*test2>
252 \input hyphsubst.sty\relax
253
254 \catcode'\@=11\relax
255 \ifx\et@xlang\undefined
256   \def\l#1{\csname l@#1\endcsname}%
257 \else

```

```

258 \def\l#1{\csname lang@#1\endcsname}%
259 \fi
260 \def\Check#1#2{%
261   \ifnum#1=#2\relax
262   \else
263     \@PackageError{test}{Wrong number: #1 <> #2}\@ehc
264   \fi
265 }
266
267 \language=0\relax
268 \HyphSubstLet{ZeroSaved}{ngerman}
269 \Check{\l{USenglish}}{0}%
270 \HyphSubstLet{USenglish}{ngerman}
271 \Check{\l{USenglish}}{\l{ngerman}}
272 \ifnum\l{USenglish}>0 %
273 \else
274   \@PackageError{test}{\string\language\space is not updated}\@ehc
275 \fi
276 \HyphSubstLet{german}{ngerman}
277 \Check{\l{german}}{\l{ngerman}}
278 \Check{\l{USenglish}}{\l{ngerman}}
279 \csname @@end\endcsname\end
280 </test2>

```

## 4 Installation

### 4.1 Download

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

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

[CTAN: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](#)

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

### 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/
```

---

<sup>1</sup><http://ftp.ctan.org/tex-archive/>



### 4.3 Package installation

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

```
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):

```
hyphsubst.sty      → tex/generic/oberdiek/hyphsubst.sty
hyphsubst.pdf      → doc/latex/oberdiek/hyphsubst.pdf
test/hyphsubst-test1.tex → doc/latex/oberdiek/test/hyphsubst-test1.tex
test/hyphsubst-test2.tex → doc/latex/oberdiek/test/hyphsubst-test2.tex
hyphsubst.dtx      → source/latex/oberdiek/hyphsubst.dtx
```

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  $\text{\TeX}$  distribution (`te $\text{\TeX}$` , `mik $\text{\TeX}$` , ...) relies on file name databases, you must refresh these. For example, `te $\text{\TeX}$`  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  $\text{\LaTeX}$ .** The `.dtx` chooses its action depending on the format:

**plain- $\text{\TeX}$ :** Run `docstrip` and extract the files.

**$\text{\LaTeX}$ :** Generate the documentation.

If you insist on using  $\text{\LaTeX}$  for `docstrip` (really, `docstrip` does not need  $\text{\LaTeX}$ ), 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 `pdf $\text{\LaTeX}$` :

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

[2008/06/07 v0.1]

- [2008/06/09 v0.2]

- ## 6 Index

Symbols		147, 153, 156, 160, 178, 181, 184, 187, 226, 248, 256, 258, 279
\#	176, 238	\CurrentOption
\%	241	
\@	177, 234, 254	
\@PackageError	108, 263, 274	D
\@PackageInfo	137	\DeclareOption
\@ehc	108, 263, 274	
\@firstofone	185, 188	E
\@firstoftwo	150, 153	\empty
\@gobble	182, 190	\end
\@secondoftwo	148, 156	\endcsname
\@undefined	52, 255	67, 93, 99, 107, 111, 113, 118, 120, 123, 126, 135, 136, 139, 147, 153, 156, 160, 178, 181, 184, 187, 226, 248, 256, 258, 279
\[	239	\endinput
\]	235	\et@xlang
\{	174, 236	
\}	175, 237	
\]	240	

<code>\body</code>	194, 198
--------------------	----------

```

\catcode ..... 3, 4, 5, 6, 7,
8, 9, 17, 31, 32, 33, 34, 35, 36,
37, 38, 39, 40, 41, 42, 43, 64,
65, 68, 69, 70, 71, 75, 76, 77,
78, 82, 84, 174, 175, 176, 177,
212, 221, 234, 235, 236, 237,
238, 239, 240, 241, 242, 243, 254
\Check ..... 260, 269, 271, 277, 278
\count@ ..... 179, 208,
212, 214, 215, 219, 221, 222, 223
\countdef ..... 179
\csname ..... 10, 18, 44, 60,
67, 93, 99, 107, 111, 113, 118,
120, 123, 126, 135, 136, 139,

```

## \DeclareOption ..... 164

```

\empty ..... 13, 14
\end ..... 249, 279
\endscname ..... 10, 18, 44, 60,
        67, 93, 99, 107, 111, 113, 118,
        120, 123, 126, 135, 136, 139,
        147, 153, 156, 160, 178, 181,
        184, 187, 226, 248, 256, 258, 279
\endinput ..... 26, 162
\et@xlang ..... 255

```

\HyphSubst@AtEnd . . . . 80, 81, 161, 171  
\HyphSubst@l 98, 107, 111, 113, 118,  
120, 123, 126, 135, 136, 139, 147  
\HyphSubst@Option . . . . . 165, 167  
\HyphSubstIfExists . . . . . 2, 145  
\HyphSubstLet 2, 104, 168, 268, 270, 276

```

\ifnum ..... 123, 214, 222, 261, 272
\ifx ..... 11, 14, 18, 44, 52, 55,
           93, 99, 107, 111, 147, 153, 156,
           160, 178, 181, 184, 187, 226, 255
\immediate ..... 20, 46
\input ..... 94, 227, 252
\iterate ..... 195, 197, 199

```

\l ...	256, 258, 269, 271, 272, 277, 278
\language ...	123, 125, 130, 267, 274
\lmsg .....	110, 128, 140
\LoadCommand .....	227, 244
\loop .....	193, 209, 220

`\MessageBreak` . . . . . 114, 119, 121, 129

\msg .....	112, 117, 138	\RestoreCatcodes ..	207, 210, 211, 245
<b>N</b>		<b>S</b>	
\next .....	199, 201, 203	\space .....	130, 274
\number .....	120, 126, 139	<b>T</b>	
<b>P</b>		\Test .....	229, 247
\PackageInfo .....	23	\the .....	68, 69, 70, 71, 82, 212
\ProcessOptions .....	170	\TMP@EnsureCode	79, 86, 87, 88, 89, 90, 91
\ProvidesPackage .....	15, 61	<b>W</b>	
<b>R</b>		\write .....	20, 46
\RangeCatcodeInvalid .....		<b>X</b>	
.....	218, 230, 231, 232, 233	\x .....	10, 11, 14, 19, 23,
\repeat .....	193, 205, 216, 224		25, 45, 50, 60, 66, 74, 106, 124, 143
\RequirePackage .....	96		