Babel support for the German language
(post-1996 orthography)

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Abstract
This manual documents babel language support for German (post-1996 orthography), including support for the Austrian and Swiss (standard) varieties of German. The manual is part of the babel-german bundle.

1 Aim and usage

The babel ’language definition file’ ngermanb.ldf documented in this manual provides the babel package with all language specific strings, settings and commands needed for writing German texts, including texts in the Austrian and Swiss (standard) varieties of German. Furthermore, it is assured that the correct hyphenation patterns for the respective language or variety are used (see sec. 3 for details). The file, and hence this manual, addresses the contemporary (‘reformed’, i.e., post-1996) orthography. For traditional (pre-1996) German orthography support, please refer to the complementary manual for the germanb.ldf language definition file.

In order to use the language definitions provided here, you need to use the babel package and pass the respective language/variety name as an option, either of

• \usepackage[ngerman]{babel}
• \usepackage[austrian]{babel}
• \usepackage[nswissgerman]{babel}
• \usepackage[nswissgerman.toss]{babel}

Using multiple varieties in parallel is possible; consult the babel manual [2] for details.

†The file ngermanb.ldf started as a re-implementation of the package ngerman.sty by Bernd Raichle (cf. [7]), which itself builds on german.sty, originally developed by Hubert Partl (cf. [5]) and later maintained by Bernd Raichle as well. The initial re-implementation was done by Johannes Braams.
‡Obviously, the prefix (n) in the language/variety names stands for ‘new’ (orthography) here, since the names austrian, german and swissgerman were already used for pre-1996 orthography.
§See sec. 4 on the toss modifier.
Two Taboldstyle

Shorthands

For all three varieties of German, the character " is made active in order to provide some shorthand macros for frequently used special characters as well as for better control of hyphenation, line breaks and ligatures. Table 1 provides an overview of the shorthands that are provided by babel-german for ngerman, naustrian and nswissgerman.

Table 1: The extra definitions made by ngermanb.ldf

<table>
<thead>
<tr>
<th>Character</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;a&quot;</td>
<td>Umlaut (ä) (shorthand for &quot;a&quot;). Similar shorthands are available for all other lower- and uppercase vowels (umlauts: &quot;ö&quot;, &quot;ü&quot;, &quot;A&quot;, &quot;O&quot;, &quot;U&quot;; tremata: &quot;e&quot;, &quot;i&quot;, &quot;E&quot;, &quot;I&quot;).</td>
</tr>
<tr>
<td>&quot;s&quot;</td>
<td>German (ß) (shorthand for \ss{}); but cf. sec. 4.</td>
</tr>
<tr>
<td>&quot;z&quot;</td>
<td>ß German (ß) (shorthand for \ss{}). Differs to &quot;s in uppercase version; but cf. sec. 4.</td>
</tr>
<tr>
<td>&quot;S&quot;</td>
<td>\uppercase(&quot;s), typeset as \ss{} \must be written as \ss{} in uppercase writing.</td>
</tr>
<tr>
<td>&quot;Z&quot;</td>
<td>\uppercase(&quot;z), typeset as \SS{}. In traditional spelling, (ß) could also be written as (SZ) instead of (SS) in uppercase writing. Note that, with reformed orthography, the (SZ) variant has been deprecated in favour of (SS) only.</td>
</tr>
<tr>
<td>&quot;</td>
<td>Disable ligature at this position (e. g., at morpheme boundaries, as in Auf&quot;</td>
</tr>
<tr>
<td>&quot;-&quot;</td>
<td>An additional breakpoint that does still allow for hyphenation at the breakpoints preset in the hyphenation patterns (as opposed to -).</td>
</tr>
<tr>
<td>&quot;=&quot;</td>
<td>An explicit hyphen with a breakpoint, allowing for hyphenation at the other points preset in the hyphenation patterns (as opposed to plain -), useful for long compounds such as IT&quot;=Dienstleisterinnen.</td>
</tr>
<tr>
<td>&quot;-&quot;</td>
<td>An explicit hyphen without a breakpoint. Useful for cases where the hyphen should stick at the following syllable, e. g., bergauf und &quot;-ab.</td>
</tr>
<tr>
<td>&quot;&quot;</td>
<td>A breakpoint that does not output a hyphen if the line break is performed (consider parenthetical extensions as in (pseudo&quot;-)=wissenschaftlich).</td>
</tr>
<tr>
<td>&quot;/&quot;</td>
<td>A slash that allows for a linebreak. As opposed to \slash{}, hyphenation at the breakpoints preset in the hyphenation patterns is still allowed.</td>
</tr>
<tr>
<td>&quot;'&quot;</td>
<td>German left double quotes ⟨&quot;⟩.</td>
</tr>
<tr>
<td>&quot;'&quot;</td>
<td>German right double quotes ⟨&quot;⟩.</td>
</tr>
<tr>
<td>&quot;&lt;&quot;</td>
<td>French/Swiss left double quotes ⟨«⟩.</td>
</tr>
<tr>
<td>&quot;&gt;&quot;</td>
<td>French/Swiss right double quotes ⟨»⟩.</td>
</tr>
</tbody>
</table>

Table 2 lists some babel macros for quotation marks that might be used as an alternative to the quotation mark shorthands listed above.

Table 2: Alternative commands for quotation marks (provided by babel)

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>\glqq</td>
<td>German left double quotes ⟨„⟩.</td>
</tr>
<tr>
<td>\grqq</td>
<td>German right double quotes ⟨„⟩.</td>
</tr>
<tr>
<td>\glq</td>
<td>German left single quotes ⟨‘⟩.</td>
</tr>
<tr>
<td>\grq</td>
<td>German right single quotes ⟨‘⟩.</td>
</tr>
<tr>
<td>\fllq</td>
<td>French/Swiss left double quotes ⟨«⟩.</td>
</tr>
<tr>
<td>\frqq</td>
<td>French/Swiss right double quotes ⟨»⟩.</td>
</tr>
<tr>
<td>\flq</td>
<td>French/Swiss left single quotes ⟨‘⟩.</td>
</tr>
<tr>
<td>\frq</td>
<td>French/Swiss right single quotes ⟨‘⟩.</td>
</tr>
<tr>
<td>\dq</td>
<td>The straight quotation mark character ⟨&quot;⟩.</td>
</tr>
</tbody>
</table>
3  Hyphenation patterns

The question which hyphenation patterns are used by Babel in case of the varieties of German needs some elaboration. There is a set of established hyphenation patterns for pre- and post-1996 German orthography that has been available with \TeX distributions for a long time (currently, these are shipped in form of the dehyph and dehyphn files). These patterns, though, have many flaws (they produce wrong hyphenations, and not much is known about their construction). Therefore, a group of people developed completely new patterns that do much better, the so-called 'experimental' new hyphenation patterns of German, distributed in the dehyph-exptl package. As opposed to the old patterns, the new ones undergo constant improvement. The price for this, however, is that hyphenation and thus the typeset document is subject to change with, and only due to, pattern updates.

Modern engines (i.e., \texttt{xetex} and \texttt{luatex}) have already embraced those new patterns, i.e., they are activated on these engines by default. The classic \TeX engines (\texttt{tex/pdftex}), however, haven’t: they continue to use the old patterns. The reason for this is one of \TeX’s quality standards: refrain, if ever possible, from changing the output of user’s documents in the wake of software updates.

This means that you need to explicitly activate the new patterns for a given document with the classic engines, should you want to use them instead of the old ones. With Babel, this can be done quite easily by means of the \texttt{hyphsubst} package:

\begin{verbatim}
\usepackage[ngerman=ngerman-x-latest]{hyphsubst}
\usepackage[ngerman]{babel}
\end{verbatim}

Since \texttt{naustrian} and \texttt{nswissgerman} use the same patterns as \texttt{ngerman}, the given \texttt{hyphsubst} option activates the new patterns for all varieties; but note that \texttt{hyphsubst} must be loaded before \texttt{babel} (please refer to [3] and [4] for details).

If you only want to use experimental patterns for one variety, you can do like so:

\begin{verbatim}
\usepackage{hyphsubst}
\usepackage[ngerman,naustrian]{babel}
\HyphSubstLet{naustrian}{ngerman-x-latest}
\end{verbatim}

4  Variety-specific options

In Swiss (and Liechtensteinian) German writing, the use of \langle \beta \rangle is rather uncommon. Swiss writers would normally use \langle ss \rangle where German or Austrian writers use the \langle \beta \rangle character (e.g., \textit{Buße} vs. \textit{Busse}). When texts (or names) from other German speaking areas are quoted, however, the spelling and hence the \langle \beta \rangle is often maintained (particularly in scholarly writing where the spelling of quoted text is not supposed to be touched).

We assume that (1) Swiss writers normally input \langle ss \rangle directly when they mean \langle \beta \rangle, and that (2) the \langle \beta \rangle-related shorthands \texttt{“s} and \texttt{“z} are useful also for Swiss writers when they actually need \langle \beta \rangle, the more so since the \langle \beta \rangle is not as directly accessible on Swiss keyboards as it is on German and Austrian ones. On the other hand, there might be occasions where writers want to transfer a text from German or Austrian into Swiss Standard German and adapt the spelling on the fly, i.e., transform all \langle \beta \rangle into \langle ss \rangle.
For this special case, we provide an option to make the ⟨ß⟩-related shorthands "s and "z expand to the respective digraphs, ⟨ss⟩ and ⟨sz⟩, rather than to ⟨ß⟩. This is not the default behavior with nswissgerman since, as mentioned, there are situations when the ⟨ß⟩ is (and has to be) used in Swiss writing, and normally, no shorthand is needed to input (or output) two simple ⟨s⟩ characters. You can opt-in (and out) digraphical expansion of "s and "z on a global and local level:

- To globally switch on the digraphical expansion, use the Babel modifier toss (read: 'to ⟨ss⟩') with nswissgerman. I.e., pass nswissgerman.toss (rather than nswissgerman) as babel option.
- To switch on the digraphical expansion only locally, you can use the boolean switch \tosstrue. Likewise, \tossfalse switches off (both locally and globally set) digraphical expansion.

Both these changes result in the following deviant behavior of two shorthands:

"s Expands to digraph ⟨ss⟩
"z Expands to digraph ⟨sz⟩

5 Implementation

5.1 General settings

If ngermanb. ldf is read via the deprecated babel option ngermanb, we make it behave as if ngerman was specified.

```latex
1\def\tmpa{ngermanb}
2\ifx\CurrentOption\tmpa
3 \def\CurrentOption{ngerman}
4\fi
```

The macro \LdfInit takes care of preventing that this file is loaded more than once with the same option, checking the category code of the @ sign, etc.

```latex
5\LdfInit{CurrentOption}{captions\CurrentOption}
```

We define some helper macros that help us to identify later on which variety of German we are currently dealing with.

```latex
6\def\bbl@opt@ngerman{ngerman}
7\def\bbl@opt@ngermanb{ngermanb}
8\def\bbl@opt@naustrian{naustrian}
9\def\bbl@opt@nswissgerman{nswissgerman}
```

If ngermanb. ldf is read as an option, i.e., by the \usepackage command, ngerman could be an 'unknown' language, so we have to make it known. We check for the existence of \@ngerman and issue a warning if it is unknown.

```latex
10\ifx\@ngerman\@undefined
11 \@nopatterns{German (new orthography)}
12 \adddialect{\@ngerman0}
13\fi
```

In graphematics, the term digraph denotes two characters that make a functional pair (which means, depending on the theoretical assumptions: they represent a single sound or they are semantically distinctive).
We set naustrian and nswissgerman as dialects of ngerman, since they use the same hyphenation patterns than ngerman. If no ngerman patterns are found, we issue a warning.

\ifx\CurrentOption\bbl@opt@naustrian
  \@nopatterns{German (new orthography), needed by Austrian (new orthography)}
\else
  \adddialect\l@naustrian\l@ngermandef\l@naustrian\l@ngermdfi
\fi

\ifx\CurrentOption\bbl@opt@nswissgerman
  \@nopatterns{German (new orthography), needed by Swiss Standard German (new orthography)}
\else
  \adddialect\l@nswissgerman\l@ngermdfi
\fi

5.2 Language-specific strings (captions)

The next step consists of defining macros that provide language specific strings and settings.

The macro \@captionsngerman defines all strings used in the four standard document classes provided with \LaTeX\ for German. This is an internal macro that is inherited and modified by the following macros for the respective language varieties.

\@captionsngerman
\namedef{@captionsngerman}{%}
def\prefacename{Vorwort}%
def\refname{Literatur}%
def\abstractname{Zusammenfassung}%
def\bibname{Literaturverzeichnis}%
def\chaptername{Kapitel}%
def\appendixname{Anhang}%
def\contentsname{Inhaltsverzeichnis}%
def\listfigurename{Abbildungsverzeichnis}%
def\listtablename{Tabellenverzeichnis}%
def\indexname{Index}%
def\figurename{Abbildung}%
def\tablename{Tabelle}%
def\partname{Teil}%
def\enclname{Anlage(n)}%
def\ccname{Verteiler}%
def\headtoname{An}%
def\pagename{Seite}%
def\seename{siehe}%
def\alsoname{siehe auch}%
def\proofname{Beweis}%
\def\glossaryname{Glossar}
\def\captionsngerman\ifx\CurrentOption\bbl@opt@ngerman
\@namedef{captionsngerman}{%\nameuse{@captionsngerman}}%
\fi
\def\captionsnaustrian\ifx\CurrentOption\bbl@opt@naustrian
\@namedef{captionsnaustrian}{%\nameuse{@captionsngerman}%
def\enclname{Beilage(n)}%}
\fi
\def\captionsnswissgerman\ifx\CurrentOption\bbl@opt@nswissgerman
\@namedef{captionsnswissgerman}{%\nameuse{@captionsngerman}%
def\enclname{Beilage(n)}%}
\fi
\def\month@ngerman\ifcase\month\or Januar\or Februar\or März\or April\or Mai\or Juni\or Juli\or August\or September\or Oktober\or November\or Dezember\fi
\def\datengerman\ifx\CurrentOption\bbl@opt@ngerman\def\today{\number\day.\month\space\number\year}}\fi
\def\datenswissgerman\ifx\CurrentOption\bbl@opt@nswissgerman\def\today{\number\day.\month\space\number\year}}\fi

5.3 Date localizations
\def\month@ngerman The macro \month@ngerman defines German month names for all varieties.
\def\datengerman The macro \datengerman redefines the command \today to produce German dates. It is only defined if \german is requested.
\def\datenswissgerman The macro \datenswissgerman does the same for Swiss Standard German dates. The result is identical to German. This macro is only defined if \swissgerman is requested.
The macro \datenaustrian redefines the command \today to produce Austrian versions of the German dates. Here, the naming of January ("Jänner") differs from the other German varieties. The macro is only defined if naustrian is requested.

The macros \extrasnaustrian, \extrasnswissgerman and \extrasngerman, respectively, will perform all the extra definitions needed for the German language or the respective variety. The macro \noextrasngerman is used to cancel the actions of \extrasngerman. \noextrasnaustrian and \noextrasnswissgerman behave analogously.

First, the character " is declared active for all German varieties. This is done once, later on its definition may vary.

Depending on the option with which the language definition file has been loaded, the macro \extrasgerman, \extrasnaustrian or \extrasnswissgerman is defined. Each of those is identical: they load the shorthands defined below and activate the " character.

For Swiss Standard German, we allow optionally to expand the (ß)-related shorthands the Swiss way, i.e. as (ss) (globally, if the modifier toss is used or locally if \ntosstrue).

Next, again depending on the option with which the language definition file has been loaded, the macro \noextrasgerman, \noextrasnaustrian or \noextrasnswissgerman is defined. These deactivate the " character and thus turn the shorthands off again outside of the respective variety.
In order for \TeX{} to be able to hyphenate German words which contain ‘ß’ (in the \OT1 position ^\gamma) we have to give the character a nonzero \lccode (see Appendix H, the \TeX{}book).

The umlaut accent macro \" is changed to lower the umlaut dots. The redefinition is done with the help of \umlautlow.

The current version of the ‘new’ German hyphenation patterns (dehyphn.tex) is to be used with \lefthyphenmin and \righthyphenmin set to 2.

For German texts we need to assure that \frenchspacing is turned on.

5.5 Active characters, macros & shorthands

The following code is necessary because we need an extra active character. This character is then used as indicated in table 1.

In order to be able to define the function of \", we first define a couple of ‘support’ macros.

\dq

We save the original double quotation mark character in \dq to keep it available, the math accent \" can now be typed as ".

Furthermore, we define some helper macros for contextual (B) handling.
Since we need to add special cases for hyperref which needs \textorpdfstring, we provide a dummy command for the case that hyperref is not loaded.

Now we can define the doublequote shorthands: the umlauts,

\begin{verbatim}
\declare@shorthand{ngerman}{"a}{\textormath{"{a}\bbl@allowhyphens}{\ddot a}}
\declare@shorthand{ngerman}{"o}{\textormath{"{o}\bbl@allowhyphens}{\ddot o}}
\declare@shorthand{ngerman}{"u}{\textormath{"{u}\bbl@allowhyphens}{\ddot u}}
\declare@shorthand{ngerman}{"A}{\textormath{"{A}\bbl@allowhyphens}{\ddot A}}
\declare@shorthand{ngerman}{"O}{\textormath{"{O}\bbl@allowhyphens}{\ddot O}}
\declare@shorthand{ngerman}{"U}{\textormath{"{U}\bbl@allowhyphens}{\ddot U}}
\ declare@shorthand{ngerman}{"e}{\textormath{"{e}}{\ddot e}}
\ declare@shorthand{ngerman}{"E}{\textormath{"{E}}{\ddot E}}
\ declare@shorthand{ngerman}{"i}{\textormath{"{\i}}{\ddot \i}}
\ declare@shorthand{ngerman}{"I}{\textormath{"{I}}{\ddot I}}
\ declare@shorthand{ngerman}{"s}{\bbl@ss}
\ declare@shorthand{ngerman}{"S}{\bbl@SS}
\ declare@shorthand{ngerman}{"z}{\bbl@sz}
\ declare@shorthand{ngerman}{"Z}{\bbl@SZ}
\end{verbatim}

tremata,

\begin{verbatim}
\ declare@shorthand{ngerman}{"'}{\glqq}
\ declare@shorthand{ngerman}{"'}{\grqq}
\ declare@shorthand{ngerman}{"<}{\flqq}
\ declare@shorthand{ngerman}{">}{\frqq}
\end{verbatim}

German ß,

\begin{verbatim}
\ declare@shorthand{ngerman}{"ß}{\bbl@allowhyphens}{ß}
\ declare@shorthand{ngerman}{"ß}{\bbl@allowhyphens}{ß}
\ declare@shorthand{ngerman}{"ß}{\bbl@allowhyphens}{ß}
\ declare@shorthand{ngerman}{"ß}{\bbl@allowhyphens}{ß}
\ declare@shorthand{ngerman}{"ß}{\bbl@allowhyphens}{ß}
\ declare@shorthand{ngerman}{"ß}{\bbl@allowhyphens}{ß}
\ declare@shorthand{ngerman}{"ß}{\bbl@allowhyphens}{ß}
\ declare@shorthand{ngerman}{"ß}{\bbl@allowhyphens}{ß}
\end{verbatim}

German and French/Swiss quotation marks,

\begin{verbatim}
\ declare@shorthand{ngerman}{"}{\glqq}
\ declare@shorthand{ngerman}{"}{\grqq}
\ declare@shorthand{ngerman}{"}{\flqq}
\ declare@shorthand{ngerman}{"}{\frqq}
\end{verbatim}

and some additional commands (hyphenation, line breaking and ligature control):

\begin{verbatim}
\ declare@shorthand{ngerman}{"-}{\nobreak\-\bbl@allowhyphens}
\ declare@shorthand{ngerman}{"-}{\nobreak\-\bbl@allowhyphens}
\ declare@shorthand{ngerman}{"-}{\nobreak\-\bbl@allowhyphens}
\ declare@shorthand{ngerman}{"-}{\nobreak\-\bbl@allowhyphens}
\ declare@shorthand{ngerman}{"-}{\nobreak\-\bbl@allowhyphens}
\ declare@shorthand{ngerman}{"-}{\nobreak\-\bbl@allowhyphens}
\ declare@sh shorthand{ngerman}{"-}{\nobreak\-\bbl@allowhyphens}
\ declare@shorthand{ngerman}{"-}{\nobreak\-\bbl@allowhyphens}
\end{verbatim}

All that's left to do now is to define a couple of commands for reasons of compatibility with german.sty.

\begin{verbatim}
\def\mdqon{\textorpdfstring{\textormath{\penalty\@M\discretionary{-}{}{}}{\kern.03em}\bbl@allowhyphens}{}}
\def\mdqoff{\textorpdfstring{\textormath{\leavevmode\hbox{-}}{-}}{}}
\end{verbatim}
The macro `\df@finish` takes care of looking for a configuration file, setting the main language to be switched on at `\begin{document}` and resetting the category code of `@` to its original value.

\df@finish\CurrentOption

## 5.6 `naustrian.ldf`, `ngerman.ldf` and `nswissgerman.ldf`

Babel expects a `<lang>.ldf` file for each `<lang>`. So we create portmanteau ldf files for `naustrian`, `ngerman` and `nswissgerman`. These files themselves only load `ngermanb.ldf`, which does the real work:

\input ngermanb.ldf\relax

### Change History

**Version 2.6f**

- General: Renamed from `germanb.ldf`;
  language names changed from `german` and `austrian` to `ngerman` and `naustrian`.

**Version 2.6j**

- `\noextrasngerman`: Deactivate shorthands outside of German

**Version 2.6k**

- `\@captionsngerman`: Added
  - `\glossaryname`  
- `\noextrasngerman`: Now use `\providehyphenmins` to provide a default value

**Version 2.6m**

- `\@captionsngerman`: Turn frenchspacing on, as in `german.sty`

**Version 2.6n**

- `\@captionsngerman`: Corrected typo `\captionnaustrian`  
- `\captionnswissgerman`  

**Version 2.7**

- `\@captionsngerman`: Changed `\enclname` in `naustrian` to `Beilage(n)`  
- `\@captionsngerman`: Added `\datenswissgerman`:`\enclname` in `nswissgerman`  
- `\@captionsngerman`: Added `\extrasnswissgerman`  
- `\@captionsngerman`: Added `\noextrasnswissgerman`  
- `\@captionsngerman`: Deactivate shorthands also outside of `naustrian` and `nswissgerman`.
- Do not use `\@namedef` when `\noextras` is already defined and should not be overwritten.
- `\@captionsngerman`: Added `\datenswissgerman`;
- `\@captionsngerman`: Added `\extrasnswissgerman`; `\@captionsngerman`: Added `\noextrasnswissgerman`.

**Version 2.8**

- `\@captionsngerman`: Define trans-variational base captions which are loaded and modified by the varieties
- `\@captionsnswissgerman`: Only define `\captionsnswissgerman` if `naustrian`

\footnote{For `naustrian` and `ngerman`, this is not strictly necessary, since babel provides aliases for these languages (pointing to `nswissgerman`). However, since babel does not officially support these aliases anymore after the language definition files have been separated from the core, we provide the whole range of ldf files for the sake of completeness.}
... is requested. .......................... 6
\captionsngerman: Only define
\captionsngerman if ngerman is
requested. .............................. 6
\captionsnswissgerman: Only define
\captionsnswissgerman if
nswissgerman is requested. ............ 6
\datenaustrian: Only define
\datenaustrian if naustrian is
requested. .............................. 7
\datengerman: Only define
\datengerman if ngerman is
requested. .............................. 6
\datenswissgerman: Only define
\datenswissgerman if
nswissgerman is requested. ............ 6
General: Only add dialects if the
respective variety is loaded ............ 5

Version 2.10
\noextrasngerman: Implement boolean
switch \tosstrue/\tossfalse to
customize ⟨ß⟩-related shorthands
in Swiss Standard German context. .... 7
Implement modifier toss to
customize ⟨ß⟩-related shorthands
in Swiss Standard German context. .... 7
General: Add helper macros to
identify the current option. ............. 4
Improvements to the manual .......... 1

Version 2.11
General: Fix old hyphenation
regression introduced with babel
3.7 (2002) in a number of
shorthands (change of meaning of
\allowhyphens vs. \bbl@allowhyphens) .. 9

Version 2.12
General: Properly handle shorthands
in hyperref pdf strings .......... 9

Version 2.13
General: Move option helper macros
after \LdfInit to fix plain tex
usage. ................................. 4

References

Österreich, der Schweiz und Deutschland sowie in Liechtenstein, Luxemburg, Ostbel-


pkg/hyphsubst.

