Babel support for the German language (traditional orthography)

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Abstract

This manual documents the babel language definition file `germanb.ldf` for German (traditional orthography). The file is part of the babel-german bundle.

1 Aim and usage

The file `germanb.ldf` provides the babel package with all language definition macros (language specific strings and settings) for the German language, including the Austrian and Swiss varieties of German. Furthermore, it assures that the correct hyphenation patterns for the respective language or variety are used.[1] The file adheres to the traditional (1901–1996) orthography. For reformed (post-1996) German orthography support, please refer to the complementary `ngermanb.ldf` file.

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

- `\usepackage[german]{babel}`
- `\usepackage[austrian]{babel}`
- `\usepackage[swissgerman]{babel}`

Please consult the babel manual [2] for details.

2 Shorthands

For all three varieties of German, the character `"` is made active in order to provide some shorthand macros. One purpose of these shorthands is to get control over a peculiarity of traditional German spelling: some consonantial character combinations change in the

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[1] The file `germanb.ldf` started as a re-implementation of the package `german.sty` (v. 2.5b), which was originally developed by Hubert Partl (cf. [3]) and later maintained by Bernd Raichle (cf. [4]). The re-implementation was done by Johannes Braams.

context of hyphenations. Furthermore, the shorthands provide access to some frequently used special characters as well as some further possibilities to control hyphenation, to break lines and to deal with ligatures. Table 1 provides an overview of the shorthands that are provided by `germanb.ldf`.

`"a`	umlaut ä (shorthand for `\"a`). Similar shorthands are available for all other lower- and uppercase vowels (umlauts: `"a`, `"o`, `"u`, `"A`, `"O`, `"U`, as well as tremata: `"e`, `"i`, `"E`, `"I`).
`"s`	German ß (shorthand for `\ss{}`).
`"z`	German ß (shorthand for `\ss{}`).
`"ck`	for `ck` to be hyphenated as `k-k`.
`"ff`	for `ff` to be hyphenated as `ff-f`, this is also implemented for `l`, `m`, `n`, `p`, `r` and `t`.
`"S`	`SS` (`\uppercase{"s}`, since ß must be written as SS – or SZ, see below – in uppercase writing).
`"Z`	`SZ` (`\uppercase{"z}`, since ß must be written as SZ – or SS, see above – in uppercase writing).
`"|`	disable ligature at this position (e. g. `Auf"|lage`).
`"-`	an additional breakpoint that does still allow for hyphenation at the breakpoints preset in the hyphenation patterns (as opposed to `\-`).
`""`	a breakpoint that does not output a hyphen sign if the line break is performed (useful for compound words with hyphen, e. g. `(Un-)""Sinn`).
`"~`	a compound word mark without a breakpoint. Useful for cases such as `bergauf und "~ab`.
`"=`	a compound word mark with a breakpoint, allowing for hyphenation at the other points preset in the hyphenation patterns (as opposed to plain `-`).
`"‘`	German left double quotes (i. e. „).
`"’`	German right double quotes (i. e. “).
`"<`	French/Swiss left double quotes (i. e. «).
`">`	French/Swiss right double quotes (i. e. »).

Table 1: Shorthands provided by `germanb.ldf`

Table 2 lists some macros for quotation marks that might be used as an alternative to the quotation mark shorthands provided by `germanb.ldf`.

3 Implementation

3.1 General settings

If `germanb.ldf` is read via the babel option germanb, we make it behave as if german was specified.

`\glqq`	German left double quotes (i. e. „).
`\grqq`	German right double quotes (i. e. “).
`\glq`	German left single quotes (i. e. ‚).
`\grq`	German right single quotes (i. e. ‘).
`\flqq`	French/Swiss left double quotes (i. e. «).
`\frqq`	French/Swiss right double quotes (i. e. »).
`\flq`	French/Swiss left single quotes (i. e. ‹).
`\frq`	French/Swiss right single quotes (i. e. ›).
`\dq`	the original quotation mark character (i. e. ").

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

```
\def\bbl@tempa{germanb}
\ifx\CurrentOption\bbl@tempa
  \def\CurrentOption{german}
  \ifx\l@german\@undefined
    \@nopatterns{German}
    \adddialect\l@german0
  \fi
  \let\l@germanb\l@german
  \AtBeginDocument{%
    \let\captionsgermanb\captionsgerman
    \let\dategermanb\dategerman
    \let\extrasgermanb\extrasgerman
    \let\noextrasgermanb\noextrasgerman
  }
\fi
```

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

```
\LdfInit\CurrentOption{captions\CurrentOption}
```

If `germanb.ldf` is read as an option, i.e. via `\usepackage` command, `german` could be an ‘unknown’ language, so we have to make it known. We check for the existence of `\l@german` to see whether we have to do something here.

```
\ifx\l@german\@undefined
  \@nopatterns{German}
  \adddialect\l@german0
\fi
```

We set `austrian` as a dialect of `german`, since the Austrian variety uses the same hyphenation patterns as Germany’s Standard German.

```
\adddialect\l@austrian\l@german
```

For the Swiss variety, we attempt to load the specific `swissgerman` hyphenation patterns and fall back to `german` if those are not available.

```
\def\bbl@tempa{swissgerman}
\ifx\CurrentOption\bbl@tempa
```

```
\ifx\l@swissgerman\@undefined
  \ifx\l@german\@undefined
    \@nopatterns{swissgerman and german}
    \adddialect\l@swissgerman0
  \else
    \@nopatterns{swissgerman}
    \adddialect\l@swissgerman\l@german
  \fi
\fi
\fi
```

3.2 Language-specific strings (captions)

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

`\captionsgerman` The macro `\captionsgerman` defines all strings used in the four standard document classes provided with LaTeX for German.

```
\@namedef{captionsgerman}{%
  \def\prefacename{Vorwort}%
  \def\refname{Literatur}%
  \def\abstractname{Zusammenfassung}%
  \def\bibname{Literaturverzeichnis}%
  \def\chaptername{Kapitel}%
  \def\appendixname{Anhang}%
  \def\contentsname{Inhaltsverzeichnis}%    % oder nur: Inhalt
  \def\listfigurename{Abbildungsverzeichnis}%
  \def\listtablename{Tabellenverzeichnis}%
  \def\indexname{Index}%
  \def\figurename{Abbildung}%
  \def\tablename{Tabelle}%                  % oder: Tafel
  \def\partname{Teil}%
  \def\enclname{Anlage(n)}%
  \def\ccname{Verteiler}%                   % oder: Kopien an
  \def\headtoname{An}%
  \def\pagename{Seite}%
  \def\seename{siehe}%
  \def\alsoname{siehe auch}%
  \def\proofname{Beweis}%
  \def\glossaryname{Glossar}%
  }
```

`\captionsaustrian` The macro `\captionsaustrian` builds on `\captionsgerman`, but redefines some strings following Austrian conventions (for the respective variants, cf. [1]).

```
\@namedef{captionsaustrian}{%
  \@nameuse{captionsgerman}
  \def\enclname{Beilage(n)}%
  }
```

\captionsswissgerman The macro \captionsswissgerman builds on \captionsgerman, but redefines some strings following Swiss conventions (for the respective variants, cf. [1]).

```
\@namedef{captionsswissgerman}{%
  \@nameuse{captionsgerman}
  \def\enclname{Beilage(n)}%
  }
```

3.3 Date localizations

\dategerman The macro \dategerman redefines the command \today to produce German dates.

```
\def\month@german{\ifcase\month\or
  Januar\or Februar\or M\"arz\or April\or Mai\or Juni\or
  Juli\or August\or September\or Oktober\or November\or Dezember\fi}
\def\dategerman{\def\today{\number\day.~\month@german
    \space\number\year}}
```

\dateswissgerman The macro \dateswissgerman does the same for Swiss German dates. The result is identical to German.

```
\def\dateswissgerman{\def\today{\number\day.~\month@german
    \space\number\year}}
```

\dateaustrian The macro \dateaustrian redefines the command \today to produce Austrian versions of the German dates. Here, the naming of January („Jänner“) differs from the other German varieties.

```
\def\dateaustrian{\def\today{\number\day.~\ifnum1=\month
  J\"anner\else \month@german\fi \space\number\year}}
```

3.4 Extras

\extrasgerman The macros \extrasgerman, \extrasaustrian and \extrasswissgerman, respectively, will perform all the extra definitions needed for the German language or the respective variety. The macro \noextrasgerman is used to cancel the actions of \extrasgerman. \noextrasaustrian and \noextrasswissgerman behave analoguously.

\extrasaustrian

\extrasswissgerman

\noextrasgerman

\noextrasaustrian

\noextrasswissgerman

For all German varieties, the character " is made active. This is done once, later on its definition may vary.

```
\initiate@active@char{"}
\@namedef{extras\CurrentOption}{%
  \languageshorthands{german}}
\expandafter\addto\csname extras\CurrentOption\endcsname{%
  \bbl@activate{"}}
```

Turn the shorthands off again outside of German.

```
\expandafter\addto\csname noextras\CurrentOption\endcsname{%
  \bbl@deactivate{"}}
```

In order for TEX to be able to hyphenate German words which contain ‘ß’ (in the OT1 position ^^Y) we have to give the character a nonzero \lccode (see Appendix H, the TEXbook).

```
\expandafter\addto\csname extras\CurrentOption\endcsname{%
  \babel@savevariable{\lccode25}%
  \lccode25=25}
```

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

```
\expandafter\addto\csname extras\CurrentOption\endcsname{%
  \babel@save\"\umlautlow}

\expandafter\addto\csname noextras\CurrentOption\endcsname{%
  \umlauthigh}
```

The German hyphenation patterns can be used with `\lefthyphenmin` and `\righthyphenmin` set to 2.

```
\providehyphenmins{\CurrentOption}{\tw@\tw@}
```

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

```
\expandafter\addto\csname extras\CurrentOption\endcsname{%
  \bbl@frenchspacing}
\expandafter\addto\csname noextras\CurrentOption\endcsname{%
  \bbl@nonfrenchspacing}
```

3.5 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 `"`.

```
\begingroup \catcode`\"12
\def\x{\endgroup
  \def\@SS{\mathchar"7019 }
  \def\dq{"}}
\x
```

Now we can define the doublequote shorthands: the umlauts,

```
\declare@shorthand{german}{"a}{\textormath{\"{a}\allowhyphens}{\ddot a}}
\declare@shorthand{german}{"o}{\textormath{\"{o}\allowhyphens}{\ddot o}}
\declare@shorthand{german}{"u}{\textormath{\"{u}\allowhyphens}{\ddot u}}
\declare@shorthand{german}{"A}{\textormath{\"{A}\allowhyphens}{\ddot A}}
\declare@shorthand{german}{"O}{\textormath{\"{O}\allowhyphens}{\ddot O}}
\declare@shorthand{german}{"U}{\textormath{\"{U}\allowhyphens}{\ddot U}}
```

tremata,

```
\declare@shorthand{german}{"e}{\textormath{\"{e}}{\ddot e}}
\declare@shorthand{german}{"E}{\textormath{\"{E}}{\ddot E}}
\declare@shorthand{german}{"i}{\textormath{\"{\i}}%
                               {\ddot\imath}}
\declare@shorthand{german}{"I}{\textormath{\"{I}}{\ddot I}}
```

German ß,

```
\declare@shorthand{german}{"s}{\textormath{\ss}{\@SS{}}}
\declare@shorthand{german}{"S}{\SS}
\declare@shorthand{german}{"z}{\textormath{\ss}{\@SS{}}}
\declare@shorthand{german}{"Z}{SZ}
```

German and French/Swiss quotation marks,

```
\declare@shorthand{german}{"‘}{\glqq}
\declare@shorthand{german}{"’}{\grqq}
\declare@shorthand{german}{"<}{\flqq}
\declare@shorthand{german}{">}{\frqq}
```

discretionary commands

```
\declare@shorthand{german}{"c}{\textormath{\bbl@disc ck}{c}}
\declare@shorthand{german}{"C}{\textormath{\bbl@disc CK}{C}}
\declare@shorthand{german}{"F}{\textormath{\bbl@disc F{FF}}{F}}
\declare@shorthand{german}{"l}{\textormath{\bbl@disc l{ll}}{l}}
\declare@shorthand{german}{"L}{\textormath{\bbl@disc L{LL}}{L}}
\declare@shorthand{german}{"m}{\textormath{\bbl@disc m{mm}}{m}}
\declare@shorthand{german}{"M}{\textormath{\bbl@disc M{MM}}{M}}
\declare@shorthand{german}{"n}{\textormath{\bbl@disc n{nn}}{n}}
\declare@shorthand{german}{"N}{\textormath{\bbl@disc N{NN}}{N}}
\declare@shorthand{german}{"p}{\textormath{\bbl@disc p{pp}}{p}}
\declare@shorthand{german}{"P}{\textormath{\bbl@disc P{PP}}{P}}
\declare@shorthand{german}{"r}{\textormath{\bbl@disc r{rr}}{r}}
\declare@shorthand{german}{"R}{\textormath{\bbl@disc R{RR}}{R}}
\declare@shorthand{german}{"t}{\textormath{\bbl@disc t{tt}}{t}}
\declare@shorthand{german}{"T}{\textormath{\bbl@disc T{TT}}{T}}
```

(we need to treat `"f` a bit differently in order to preserve the ff-ligature)

```
\declare@shorthand{german}{"f}{\textormath{\bbl@discff}{f}}
\def\bbl@discff{\penalty\@M
  \afterassignment\bbl@insertff \let\bbl@nextff= }
\def\bbl@insertff{%
  \if f\bbl@nextff
    \expandafter\@firstoftwo\else\expandafter\@secondoftwo\fi
  {\relax\discretionary{ff-}{f}{ff}\allowhyphens}{f\bbl@nextff}}
\let\bbl@nextff=f
```

and some additional commands (hyphenation and ligature control):

```
\declare@shorthand{german}{"-}{\nobreak\-\bbl@allowhyphens}
\declare@shorthand{german}{"|}{%
  \textormath{\penalty\@M\discretionary{-}{}{\kern.03em}%
              \allowhyphens}{}}
\declare@shorthand{german}{""}{\hskip\z@skip}
\declare@shorthand{german}{"~}{\textormath{\leavevmode\hbox{-}}{-}}
\declare@shorthand{german}{"=}{\penalty\@M-\hskip\z@skip}
```

`\mdqon` `\mdqoff` `\ck`

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

```
\def\mdqon{\shorthandon{"}}
```

```
\def\mdqoff{\shorthandoff{"}}
\def\ck{\allowhyphens\discretionary{k-}{k}{ck}\allowhyphens}
```

The macro `\ldf@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.

```
\ldf@finish\CurrentOption
```

3.6 `austrian.ldf`, `german.ldf` and `swissgerman.ldf`

Babel expects a ⟨*lang*⟩`.ldf` file for each ⟨*lang*⟩. So we create portmanteau ldf files for `austrian`, `german` and `swissgerman`.[2] These files themselves only load `germanb.ldf`, which does the real work:

```
\input germanb.ldf\relax
```

Change History

[2] For some `austrian` and `german`, this is not strictly necessary, since babel provides aliases for these languages (pointing to `germanb`). 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.

References

[1] Ammon, Ulrich et al.: *Variantenwörterbuch des Deutschen. Die Standardsprache in Österreich, der Schweiz und Deutschland sowie in Liechtenstein, Luxemburg, Ostbelgien und Südtirol.* Berlin, New York: De Gruyter.

[2] Braams, Johannes and Bezos, Javier: *Babel.* http://mirrors.ctan.org/macros/latex/required/babel/base/babel.pdf.

[3] Partl, Hubert: *German TEX*, *TUGboat* 9 (1988) #1, p. 70–72.

[4] Raichle, Bernd: *Kurzbeschreibung german.sty und ngerman.sty (Version 2.5).* http://mirrors.ctan.org/language/german/gerdoc.pdf.