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. Some of these shorthands address a peculiarity of traditional German spelling: consonantial character combinations that change in the context of

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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.

hyphenations. Other shorthands are provided 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 germanb.ldf.

Table 1: Shorthands provided by germanb.ldf

"a	Umlaut $\langle\ddot{a}\rangle$ (shorthand for \"a). Similar shorthands are available for all other lower-
	and uppercase vowels (umlauts: "a, "o, "u, "A, "0, "U; tremata: "e, "i, "E, "I).

- "s German $\langle \beta \rangle$ (shorthand for \ss{}).
- "z German $\langle \mathfrak{B} \rangle$ (shorthand for \ss{}). The difference to "s is the uppercase version.
- "ck $\langle ck \rangle$, hyphenated as $\langle k-k \rangle$.
- "ff $\langle ff \rangle$, hyphenated as $\langle ff-f \rangle$; this is also implemented for $\langle l \rangle$, $\langle m \rangle$, $\langle n \rangle$, $\langle p \rangle$, $\langle r \rangle$ and $\langle t \rangle$.
- "S \uppercase{"s}, typeset as $\langle SS \rangle$ ($\langle \mathcal{B} \rangle$ must be written as $\langle SS \rangle$ [or $\langle SZ \rangle$, see below] in uppercase writing).
- "Z \uppercase{"z}, typeset as $\langle SZ \rangle$ ($\langle f \rangle$ must be written as $\langle SZ \rangle$ [or $\langle SS \rangle$, see above] in uppercase writing).
- "| Disable ligature at this position (e.g., at morpheme boundaries, as in Auf" | lage).
- "- An additional breakpoint that does still allow for hyphenation at the breakpoints preset in the hyphenation patterns (as opposed to \-).
- "= 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"=Dienstleisterinnen.
- "~ An explicit hyphen without a breakpoint. Useful for cases where the hyphen should stick at the following syllable, e. g., bergauf und "~ab.
- "" A breakpoint that does not output a hyphen if the line break is performed (consider parenthetical extensions as in (pseudo"~)""wissenschaftlich).

New feature in v. 2.9!

- "/ A slash that allows for a linebreak. As opposed to \slash{}, hyphenation at the breakpoints preset in the hyphenation patterns is still allowed.
- "' German left double quotes \langle , \rangle .
- "' German right double quotes (").
- "< French/Swiss left double quotes $\langle \mathsf{«} \rangle$.
- "> French/Swiss right double quotes (»).

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

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

\glqq	German left double quotes \langle , \rangle .
\grqq	German right double quotes $\langle " \rangle$.
\glq	German left single quotes \langle , \rangle .
\grq	German right single quotes $\langle ' \rangle$.
\flqq	French/Swiss left double quotes $\langle « \rangle$.
\frqq	French/Swiss right double quotes (»).
\flq	French/Swiss left single quotes (<).
\frq	French/Swiss right single quotes $\langle \rangle$.
\dq	The straight quotation mark character $\langle " \rangle$.

3 Implementation

3.1 General settings

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

```
1 \def\bbl@opt@german{german}
2 \def\bbl@opt@germanb{germanb}
3 \def\bbl@opt@austrian{austrian}
4 \def\bbl@opt@swissgerman{swissgerman}
```

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

```
5\ifx\CurrentOption\bbl@opt@germanb
   \def\CurrentOption{german}
   \ifx\l@german\@undefined
     \@nopatterns{German}
     \adddialect\l@german0
   \let\l@germanb\l@german
   \AtBeginDocument{%
     \let\captionsgermanb\captionsgerman
13
     \let\dategermanb\dategerman
14
     \let\extrasgermanb\extrasgerman
     \let\noextrasgermanb\noextrasgerman
16
17 }
18\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.

```
19 \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 and issue a warning if it is unknown.

```
20 \ifx\l@german\@undefined
21 \@nopatterns{German (trad. orthography)}
22 \adddialect\l@german0
23 \fi
```

We set austrian as a dialect of german, since the Austrian variety uses the same hyphenation patterns as Germany's Standard German. If no German patterns are found, we issue a warning.

```
24\ifx\CurrentOption\bbl@opt@austrian
25 \ifx\l@german\@undefined
26 \@nopatterns{German (trad. orthography), needed by Austrian (trad. orthography)}
27 \adddialect\l@austrian0
28 \else
29 \adddialect\l@austrian\l@german
30 \fi
31\fi
```

For the Swiss variety, we attempt to load the specific swissgerman hyphenation patterns and fall back to german if those are not available. If no patterns are found, we issue a warning.

```
32 \ifx\CurrentOption\bbl@opt@swissgerman
33 \ifx\l@swissgerman\@undefined
34 \ifx\l@german\@undefined
35 \@nopatterns{Swiss German (trad. orthography) and German (trad. orthography)}
36 \adddialect\l@swissgerman0
37 \else
38 \@nopatterns{Swiss German (trad. orthography)}
39 \adddialect\l@swissgerman\l@german
40 \fi
41 \fi
42 \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 LTEX for German. This is an internal macro that is inherited and modified by the following macros for the respective language varieties.

```
43 \@namedef{@captionsgerman}{%
44 \def\prefacename{Vorwort}%
   \def\refname{Literatur}%
    \def\abstractname{Zusammenfassung}%
    \def\bibname{Literaturverzeichnis}%
47
    \def\chaptername{Kapitel}%
    \def\appendixname{Anhang}%
                                             % oder nur: Inhalt
    \def\contentsname{Inhaltsverzeichnis}%
    \def\listfigurename{Abbildungsverzeichnis}%
    \def\listtablename{Tabellenverzeichnis}%
   \def\indexname{Index}%
   \def\figurename{Abbildung}%
    \def\tablename{Tabelle}%
                                              % oder: Tafel
55
    \def\partname{Teil}%
56
   \def\enclname{Anlage(n)}%
57
   \def\ccname{Verteiler}%
                                              % oder: Kopien an
58
   \def\headtoname{An}%
59
   \def\pagename{Seite}%
61 \def\seename{siehe}%
62 \ \def\alsoname{siehe auch}%
63 \def\proofname{Beweis}%
   \def\glossaryname{Glossar}%
64
```

\captionsgerman

The macro \c aptions german is identical to \c aptions german, but only defined if german is requested.

```
66 \ifx\CurrentOption\bbl@opt@german
67 \@namedef{captionsgerman}{%
68 \@nameuse{@captionsgerman}%
69 }
70 \fi
```

\captionsaustrian

The macro \captionsaustrian builds on \@captionsgerman, but redefines some strings following Austrian conventions (for the respective variants, cf. [1]). It is only defined if austrian is requested.

```
71 \ifx\CurrentOption\bbl@opt@austrian
72 \@namedef{captionsaustrian}{%
73 \@nameuse{@captionsgerman}%
74 \def\enclname{Beilage(n)}%
75 }
76 \fi
```

\captionsswissgerman

The macro \captionsswissgerman builds on \@captionsgerman, but redefines some strings following Swiss conventions (for the respective variants, cf. [1]). It is only defined if swissgerman is requested.

```
77 \ifx\CurrentOption\bbl@opt@swissgerman
78 \@namedef{captionsswissgerman}{%
79 \@nameuse{@captionsgerman}%
80 \def\enclname{Beilage(n)}%
81 }
82 \fi
```

3.3 Date localizations

 $\verb|\month@german||$

The macro $\mbox{month@german}$ defines German month names for all varieties.

```
83 \def\month@german{\ifcase\month\or
84    Januar\or Februar\or M\"arz\or April\or Mai\or Juni\or
85    Juli\or August\or September\or Oktober\or November\or Dezember\fi}
```

\dategerman

The macro \dategerman redefines the command \today to produce German dates. It is only defined if german is requested.

```
86 \ifx\CurrentOption\bbl@opt@german
87 \def\dategerman{\def\today{\number\day.~\month@german
88 \space\number\year}}
89 \fi
```

\dateswissgerman

The macro \dateswissgerman does the same for Swiss German dates. It is only defined if swissgerman is requested. The result is identical to German.

```
_{90} \  \   \def\dateswissgerman \def\today{\number\day.~\month@german } \space\number\year} \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. The macro is only defined if austrian is requested.

3.4 Extras

\extrasgerman
\extrasswissgerman
\noextrasaustrian
\noextrasswissgerman
\noextrasswissgerman

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.

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

```
98 \initiate@active@char{"}
```

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

```
99 \@namedef{extras\CurrentOption}{%
100 \languageshorthands{german}}
101 \expandafter\addto\csname extras\CurrentOption\endcsname{%
102 \bbl@activate{"}}
```

Next, again depending on the option with which the language definition file has been loaded, the macro \noextrasgerman, \noextrasaustrian or \noextrasswissgerman is defined. These deactivate the " character and thus turn the shorthands off again outside of the respective variety.

```
_{103}\expandafter\addto\csname noextras\CurrentOption\endcsname{% } _{104} \bbl@deactivate{"}}
```

In order for TEX to be able to hyphenate German words which contain 'ß' (in the 0T1 position ^^Y) we have to give the character a nonzero \lccode (see Appendix H, the TEXbook).

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

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

```
108 \expandafter\addto\csname extras\CurrentOption\endcsname{%
109 \babel@save\"\umlautlow}
110 \expandafter\addto\csname noextras\CurrentOption\endcsname{%
111 \umlauthigh}
```

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

```
{\tt 112 \providehyphenmins{\CurrentOption}{\tw@\tw@}}
```

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

```
113 \expandafter\addto\csname extras\CurrentOption\endcsname{%
114 \bbl@frenchspacing}
115 \expandafter\addto\csname noextras\CurrentOption\endcsname{%
116 \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 ".

```
117 \begingroup \catcode'\"12
118 \def\x{\endgroup
119 \def\@SS{\mathchar"7019 }
120 \def\dq{"}}
121 \X
```

Now we can define the doublequote shorthands: the umlauts,

```
\label{lem:condition} $$123 \end{condition} $$123 \end{condition
126 \declare@shorthand{german}{"0}{\textormath{\"\{0\}\allowhyphens}{\ddot 0}}
{\tt 130 \backslash declare@shorthand\{german\}\{"i}\{\backslash textormath\{\backslash "\{\backslash i\}\}\%}
                                                                                      {\ddot\imath}}
{\tt 132 \backslash declare@shorthand\{german\}\{"I}\{\backslash textormath\{\backslash"\{I\}\}\{\backslash ddot\ I\}\}}
German ß,
{\tt 133 \backslash declare@shorthand\{german\}{"s}{\backslash textormath{\backslash ss}{\backslash @SS{}}}}
_{134} \ensuremath{\mbox{"S}}{\SS}
{\tt 135 \backslash declare@shorthand\{german\}{"z}{\backslash textormath{\backslash ss}{\backslash @SS{}}}}
_{136} \declare@shorthand{german}{"Z}{SZ}
German and French/Swiss quotation marks,
137 \declare@shorthand{german}{"'}{\glqq}
138 \declare@shorthand{german}{"'}{\grqq}
_{139} \declare@shorthand{german}{"<}{\flqq}
{\scriptstyle 140\ \backslash declare@shorthand\{german\}\{">\}\{\backslash frqq\}}
```

discretionary commands

```
141 \declare@shorthand{german}{"c}{\textormath{\bbl@disc ck}{c}}
          {\tt 142 \backslash declare@shorthand\{german\}{"C}{\backslash textormath\{\backslash bbl@disc\ CK\}\{C\}}}
          {\tt 143 \backslash declare@shorthand\{german\}\{"F}\{\backslash textormath\{\backslash bbl@disc\ F\{FF\}\}\{F\}\}}
          {\tt 144 \backslash declare@shorthand\{german\}{"l}{\backslash textormath{\backslash bbl@disc\ l{ll}}{l}}}
          {\tt 145 \backslash declare@shorthand\{german\}{"L}{\backslash textormath{\backslash bbl@disc\ L\{LL\}}{L}}}
          {\tt 146 \backslash declare@shorthand\{german\}\{"m\}\{\backslash textormath\{\backslash bbl@disc\ m\{mm\}\}\{m\}\}\}}
          {\tt 147 \backslash declare@shorthand\{german\}\{"M\}\{\backslash textormath\{\backslash bbl@disc\ M\{MM\}\}\{M\}\}\}}
          {\tt 148 \ declare@shorthand \{german\} \{"n\} \{ \texttt{\ textormath} \{ bbl@disc\ n\{nn\} \} \{ n\} \}}
          {\tt 150 \backslash declare@shorthand\{german\}\{"p}\{\backslash textormath\{\backslash bbl@disc\ p\{pp\}\}\{p\}\}\}}
          151 \declare@shorthand{german}{"P}{\textormath{\bbl@disc P{PP}}{P}}
          _{152}\declare@shorthand{german}{"r}{\text{\textormath}\{bbl@disc\ r\{rr\}}{r}
          153 \declare@shorthand{german}{"R}{\text{\textormath}\{bbl@disc}\ R{RR}}{R}}
          {\tt 154 \backslash declare@shorthand\{german\}\{"t}\{\backslash textormath\{\backslash bbl@disc\ t\{tt\}\}\{t\}\}}
          {\tt 155 \backslash declare@shorthand\{german\}\{"T\}\{\backslash textormath\{\backslash bbl@disc\ T\{TT\}\}\{T\}\}}
          (we need to treat "f a bit differently in order to preserve the ff-ligature)
          156 \declare@shorthand{german}{"f}{\textormath{\bbl@discff}{f}}
          _{157} \def\bl@discff{\epsilon}\M
          158 \afterassignment\bbl@insertff \let\bbl@nextff= }
          159 \def\bbl@insertff{%
          160 \if f\bbl@nextff
                  \expandafter\@firstoftwo\else\expandafter\@secondoftwo\fi
          \label{lowhyphens} \begin{tabular}{ll} $$162 & {\tt \cline{ff-}{ff}\allowhyphens}{f\bbl@nextff}$$ \end{tabular}
          163 \let\bbl@nextff=f
          and some additional commands (hyphenation, line breaking and ligature control):
          164 \declare@shorthand{german}{"-}{\nobreak\-\bbl@allowhyphens}
          165 \declare@shorthand{german}{"|}{%
          \allowhyphens
          _{170} \declare@shorthand{german}{"=}{\penalty\\@M-\hskip\\z@skip}
          171 \declare@shorthand{german}{"/}{\textormath
          172 {\bbl@allowhyphens\discretionary{/}{}{/}\bbl@allowhyphens}{}}
 \mdqon All that's left to do now is to define a couple of commands for reasons of compatibility
\mdqoff with german.sty.
    \ck_{173}\def\mdqon{\shorthandon{"}}
          _{174} \def\mdqoff{\shorthandoff{"}}
          {\tt 175 \backslash def\backslash ck\{\allowhyphens\backslash discretionary\{k-\}\{k\}\{ck\}\backslash allowhyphens\}}
```

The macro \logarrowvert and resetting the setting the main language to be switched on at $\ensuremath{\mbox{begin}\{\mbox{document}\}}$ and resetting the category code of @ to its original value.

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

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

Babel expects a $\langle lang \rangle$.ldf file for each $\langle lang \rangle$. So we create portmanteau ldf files for austrian, german and swissgerman.² These files themselves only load germanb.ldf, which does the real work:

177 \input germanb.ldf\relax

Change History

Version 1.0a	der Meer
General: Incorporated Nico's	Version 2.2
comments 1	\@captionsgerman: \pagename should
Version 1.0b	be \headpagename 4
General: fixed typo in definition for	Removed \global definitions 4
austrian language found by	\extrasgerman: Save all redefined
Werenfried Spit nspit@fys.ruu.nl . 1	macros 6
Version 1.oc	\noextrasgerman: Try to restore
General: Fixed some typos 1	everything to its former state 6
Version 1.1	General: Removed global assignments,
\noextrasgerman: Added \dieresis 6	brought uptodate with german.tex
General: When using PostScript fonts	v2.3d 1
with the Adobe fontencoding, the	Version 2.2a
dieresis-accent is located	General: Renamed babel.sty in
elsewhere, modified germanb 1 Version 1.1a	babel.com
General: Modified the documentation	Version 2.2d
somewhat	General: Removed use of
Version 2.0	\@ifundefined $\dots 3$
General: Modified for babel 3.0 1	Version 2.3
Now use \adddialect for austrian . 3	General: Rewritten parts of the code to
Now use \adddialect if language	use the new features of babel
undefined	version 3.1 1
Version 2.0a	Version 2.3e
General: Removed some problems in	\@captionsgerman: Added
change log 1	$\prefacename, \prefacename and$
Version 2.ob	\alsoname4
\extrasgerman: added some comment	\month@german: $Added$ \month@german . 5
chars to prevent white space 6	General: Added \save@sf@q macro and
\noextrasgerman: added some	rewrote all quote macros to use it . 7
comment chars to prevent white	Added warning, if no german
space 6	patterns loaded 3
Version 2.1	Brought up-to-date with german.tex
General: Removed bug found by van	v2.3e (plus some bug fixes) [br] 1

²For 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.

Version 2.3h	General: Moved the definition of
General: moved definition of	\arrowvert atcatcode right to the beginning 1
\allowhyphens, \set@low@box and	Now use \ldf@finish to wrap up 8
\save@sf@q to babel.com 7	Now use \LdfInit to perform initial
Version 2.4	checks 3
\@captionsgerman: \headpagename	Replaced \undefined with
should be \pagename 4	\@undefined and \empty with
Version 2.5	\@empty for consistency with \LaTeX . 1
General: Update or LTEX 2ε	Version 2.6f
Version 2.5c	\ck: Now use \shorthandon and
General: Now use \@nopatterns to	\shorthandoff8
produce the warning 3	\dateaustrian: use \def instead of
Removed the use of \filedate and	\edef
moved the identification after the	Use \edef to define \today to save
loading of babel.def 1	memory
Version 2.6a	\dategerman: use \def instead of \edef 5
\noextrasgerman: All the code to	Use \edef to define \today to save
handle the active double quote has	memory 5
been moved to babel.def 6	General: Copied the coding for "f from german.dtx version 2.5d 8
Removeed \3 as it is no longer in	use \SS instead of SS, removed
germanb.ldf6	braces after \ss
use \germanhyphenmins to store the	Version 2.6i
correct values 6	\noextrasgerman: Deactivate
General: \umlautlow and \umlauthigh	shorthands outside of German 6
moved to glyphs.dtx, as well as	Version 2.6j
\newumlaut (now \lower@umlaut7	\@captionsgerman: Added
Moved all quotation characters to	\glossaryname4
glyphs.dtx 7	\noextrasgerman: Now use
Moved the identification to the top	\providehyphenmins to provide a
of the file	default value
Rewrote the code that handles the	Version 2.6k
active double quote character 1	\noextrasgerman: Turn frenchspacing
Use \ddot instead of \@MATHUMLAUT . 7	on, as in german.sty 7
Version 2.6b	Version 2.6l
\@captionsgerman: Added \proofname	General: Making germanb behave like
for AMS-LTEX 4	german needs some more work
Version 2.6c	besides defining \CurrentOption 3
\noextrasgerman: Use decimal number	Version 2.6m
instead of hat-notation as the hat	General: Corrected a typo 3
may be activated 6	Version 2.7
General: added the \allowhyphens 7	\@captionsgerman: Changed \enclname
Moved \german@dq@disc to	in austrian to Beilage(n) 4
babel.def, calling it \bbl@disc 7 Version 2.6d	Split \captionsgerman from
	\captionsaustrian and
\@captionsgerman: Construct control	\captionsswissgerman 4
sequence on the fly 4	\dateswissgerman: Added
\noextrasgerman: Construct control	\dateswissgerman5
sequence \extrasgerman or \extrasaustrian on the fly 6	\extrasswissgerman: Added \extrasswissgerman 6
Textiasaustitalion me my 0	/EXCI asswissyer man 0

\noextrasgerman: Deactivate shorthands also outside of	\captionsaustrian: Only define \captionsaustrian if austrian is			
austrian and swissgerman 6 Do not use \@namedef when \noextras is already defined and should not be overwritten 6 \noextrasswissgerman: Added \noextrasswissgerman 6 General: Added support for variety swissgerman	requested			
		is requested 5 General: Only add Austrian dialect if		
	Version 2.7b General: Do not warn about missing swissgerman patterns if swissgerman is not loaded 4	austrian is loaded		
Version 2.8	Do not attempt to load \l@austrian,			
\@captionsgerman: Define trans-variational base captions which are loaded and modified by the varieties 4	which does not exist			
References				
	buch des Deutschen. Die Standardsprache in d sowie in Liechtenstein, Luxemburg, Ostbel- Gruyter.			
[2] Braams, Johannes and Bezos, Javier: Ba	Braams, Johannes and Bezos, Javier: Babel. http://www.ctan.org/pkg/babel.			
[3] Partl, Hubert: German TeX, TUGboat 9/	Partl, Hubert: <i>German T_EX</i> , <i>TUGboat</i> 9/1 (1988), p. 70–72.			
[4] Raichle, Bernd: German. http://www.ct	an.org/pkg/german.			