The iflang package

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Abstract
This package provides expandible checks for the current language based on macro \languagename or hyphenation patterns.

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∗Please report any issues at https://github.com/ho-tex/oberdiek/issues
1 Documentation

Package babel defines \texttt{\textbackslash iflanguage}. As first argument it takes a language name and executes the second or third argument depending on the current language. This language test is based on hyphenation patterns. However, it is possible that different languages or dialects share the same patterns. In such cases \texttt{\textbackslash iflanguage} fails.

However, package babel and some other packages such as german or ngerman store the language name in the macro \texttt{\textbackslash languagename} if \texttt{\selectlanguage} is called.

\begin{verbatim}
\texttt{\textbackslash ifLanguageName}\{\langle lang\rangle\} \{\langle then\rangle\} \{\langle else\rangle\}
\end{verbatim}

Macro \texttt{\textbackslash ifLanguageName} compares language \texttt{\langle lang\rangle} with the current setting of macro \texttt{\textbackslash languagename}. If both contains the same name then the \texttt{\langle then\rangle} part is called, otherwise the \texttt{\langle else\rangle} part.

The macro is expandable. Thus it can be safely used inside \texttt{\edef} or \texttt{\csname}.

If case of errors like an undefined \texttt{\textbackslash languagename} the \texttt{\langle else\rangle} part is executed.

Note: Macro \texttt{\textbackslash ifLanguageName} relies on the fact, that \texttt{\textbackslash languagename} is set correctly:

Package babel:

Full support of \texttt{\textbackslash languagename} in its language switching commands.

Format based on babel \texttt{\langle language.dat\rangle}:

If package babel is not used (or not yet loaded), then babel’s \texttt{\textbackslash hyphen.cfg} has set \texttt{\textbackslash languagename} to the last language in \texttt{\langle language.dat\rangle}, but \texttt{\textbackslash language} (current patterns) is zero and points to the first language. Thus the value of \texttt{\textbackslash languagename} is basically garbage. Package iflang warns if \texttt{\textbackslash languagename} and \texttt{\textbackslash language} do not fit. This can be fixed by loading package babel previously.

Format based on \texttt{\v-\textbackslash TeX’s etex.src} \texttt{\langle language.def\rangle}:

Unhappily it does not support \texttt{\textbackslash languagename}. Thus this package hooks into \texttt{\textbackslash uselanguage} to get \texttt{\textbackslash languagename} defined and updated there. At package loading time the changed \texttt{\textbackslash uselanguage} has not been called yet. Thus package iflang tries USenglish. This is the definite default language of etex.src. If the current patterns suit this default language, an undefined \texttt{\textbackslash languagename} is set to this language. Otherwise a \texttt{\textbackslash languagename} remains undefined and a warning is given.

\begin{verbatim}
\texttt{\textbackslash ifLanguagePatterns}\{\langle lang\rangle\} \{\langle then\rangle\} \{\langle else\rangle\}
\end{verbatim}

This macro behaves similar to \texttt{\textbackslash ifLanguageName}. But the language test is based on the current pattern in force \texttt{\textbackslash language}. Also this macro is expandable, in case of errors the \texttt{\langle else\rangle} part is called.

The following naming convention for the pattern are supported:

\texttt{\textbackslash babel/language.dat} : \texttt{\textbackslash l@\langle language\rangle}

\texttt{\textbackslash etex.src/language.def} : \texttt{\textbackslash lang@\langle language\rangle}

Package iflang looks for \texttt{\textbackslash uselanguage} (defined in \texttt{etex.src}) to find out the naming convention in use.
2 Implementation

2.1 Reload check and package identification

Reload check, especially if the package is not used with \LaTeX.  
\begin{verbatim}
\begingroup\catcode61\catcode48\catcode32=10\relax
\catcode13=13 \% \endlinechar=13 \%
\catcode35=6 \% #
\catcode39=12 \% ,
\catcode44=12 \% ,
\catcode45=12 \% -
\catcode46=12 \% .
\catcode58=12 \% : 
\catcode64=11 \% @
\catcode123=1 \% {
\catcode125=2 \% }
\expandafter\let\expandafter\x\csname ver@iflang.sty\endcsname
\ifx\x\relax % plain-TeX, first loading
\else
\def\empty{}%
\ifx\x\empty % LaTeX, first loading, \ProvidesPackage not yet seen
\else
\expandafter\ifx\csname PackageInfo\endcsname\relax
\x#1#2{%
\immediate\write-1{Package #1 Info: #2.}%
}%
\else
\def\x#1#2{\PackageInfo{#1}{#2, stopped}}%
\fi
\x{iflang}{The package is already loaded}%
\aftergroup\endinput
\fi
\fi
\endgroup%
\end{verbatim}

Package identification:
\begin{verbatim}
\begingroup\catcode61\catcode48\catcode32=10\relax
\catcode13=13 \% \endlinechar=13 \%
\catcode35=6 \% #
\catcode39=12 \% ,
\catcode44=12 \% ,
\catcode45=12 \% -
\catcode46=12 \% .
\catcode47=12 \% /
\catcode58=12 \% :
\catcode64=11 \% @
\catcode91=12 \% [
\catcode93=12 \% ]
\expandafter\ifx\csname ProvidesPackage\endcsname\relax
\def\x#1#2#3[#4]{\endgroup
\immediate\write-1{Package: #3 #4}%
\edef#1{#4}%
}%
\else
\def\x#1#2[#3]{\endgroup
\immediate\write-1{Package: #3 stopped}%
}%
\fi
\fi
\endgroup%
\end{verbatim}
\begin{quote}
\texttt{\@firstoftwo}
\end{quote}

2.2 Tools

2.2.1 Provide some basic macros of \LaTeX

\@firstoftwo

\expandafter\@firstoftwo
\@secondoftwo

\IfLang@IfDefined

2.2.2 Expandible existence check for macros

\IfLang@prefix

2.2.3 Macros for messages

\IfLang@prefix

2.2.4 Support for etex.src
The first \uselanguage that is executed as last line in language.def cannot patched this way. However, language.def is very strict. It forces the first added and used language to be USenglish. Thus, if \languagename is not defined, we can quite safely assume USenglish. As additional safety precaution the actual used patterns are checked.

\begin{group}\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname languagename\endcsname\relax
\begin{group}\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname lang@USenglish\endcsname\relax
\@PackageWarningNoLine{iflang}{% string\languagename\space is missing%
}
\else
\@PackageWarningNoLine{iflang}{% message\languagename\space is not set,\MessageBreak current language is unknown%
}
\fi
\fi
\fi
\begin{group}\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname languagename\endcsname\relax
\@PackageInfoNoLine{iflang}{% string\languagename\space is not set%
}
\fi
\fi
\fi
\fi

\subsection{IfLanguagePatterns}
\begin{group}\expandafter\expandafter\expandafter\endgroup
\begin{group}\expandafter\expandafter\expandafter\endgroup
\begin{group}\expandafter\expandafter\expandafter\endgroup
\@PackageInfoNoLine{iflang}{% string\languagename\space is not set%
}
\fi
\fi
\fi
\fi
\begin{group}\expandafter\expandafter\expandafter\endgroup
\begin{group}\expandafter\expandafter\expandafter\endgroup
\begin{group}\expandafter\expandafter\expandafter\endgroup
\@PackageInfoNoLine{iflang}{% string\languagename\space is not set%
}
\fi
\fi
\fi
\fi

\subsection{IfLanguageName}
We do not have \texttt{pdf@strcmp} (and \texttt{pdfstrcmp}). Thus we must define our own expandable string comparison. The following implementation is based on a \TeX\ pearl from David Kastrup, presented at the conference Bacho\TeX\ 2005: \url{http://www-stary.gust.org.pl/pearls/2005/david-kastrup/bachotex2005-david-kastrup-pearl1.pdf}

The original code allows macros inside the second string. Because also \texttt{language name} might consists of further macros, we need a variant that allows macros in the first string, too.

\begin{Verbatim}
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname pdf@strcmp\endcsname\relax
\else
\fi
\expandafter\@firstoftwo
\fi
\expandafter\@secondoftwo
\fi
\expandafter\expandafter\expandafter\endgroup
\end{Verbatim}

\begin{Verbatim}
\def\IfLang@StrNil{\relax}
\def\IfLang@StrEqual#1{\number\IfLang@StrEqualStart{}{}#1\IfLang@StrNil}
\number\IfLang@StrEqualStart\ifx\relax\\IfLang@StrEqualStop\fi
\ifcat\noexpand\relax\IfLang@StrExpand{#1}{#2}#3\fi
\IfLang@StrEqualStart{\if\relax\#1}{#2\fi}\IfLang@StrEqualStop\fi\#1\IfLang@StrEqualStart\#2\#3\#4\fi
\IfLang@StrEqualStart\#2\#4\relax\#313\fi
\IfLang@StrEqualStart\#2\#3\#6\IfLang@StrEqualStart\#4\#5\#6\fi
\IfLang@StrEqualStart\#1\#2\#3\#6\IfLang@StrEqualStart\#2\#3\#4\#5\#6\fi
\IfLanguageName
\def\IfLanguageName#1{\ifnum\IfLang@IfDefined{languagename}{\#1}{1}else1\fi}
\expandafter\@firstoftwo
\else
\expandafter\@secondoftwo
\fi
\expandafter\expandafter\expandafter\endgroup
\end{Verbatim}
2.5 Check plausibility of \texttt{\textbackslash languagename} \begin{group}
\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname languagename\endcsname\relax
\else
\IfLanguagePatterns{\texttt{\textbackslash languagename}}{}{\%}
\PackageWarningNoLine{iflang}{Mismatch between \texttt{\stringlanguage\space (patterns)} and setting of \texttt{\stringlanguagename}\%}
\fi
\IfLang@AtEnd\texttt{\langle/\textbackslash package\rangle}\%}
\end{group}

3 Test

3.1 Catcode checks for loading
\begin{verbatim}
\texttt{"\textbackslash test1}\%}
\texttt{\textbackslash catcode\{=1 \%}
\texttt{\textbackslash catcode\}=2 \%}
\texttt{\textbackslash catcode\#=6 \%}
\texttt{\textbackslash catcode\@=11 \%}
\texttt{\expandafter\ifx\csname count@\endcsname\relax}
\texttt{\countdef\count@=255 \%}
\fi
\texttt{\expandafter\ifx\csname @gobble\endcsname\relax}
\texttt{\long\def\@gobble#1{}%}
\fi
\texttt{\expandafter\ifx\csname @firstofone\endcsname\relax}
\texttt{\long\def\@firstofone#1{#1} %}
\fi
\texttt{\expandafter\ifx\csname loop\endcsname\relax}
\texttt{\def\loop#1\repeat{\%}
\texttt{\def\body{#1}\%}
\texttt{\iterate \%}
\texttt{\let\next\iterate \%}
\texttt{\let\next\relax \%}
\fi
\end{verbatim}

\let\repeat=\fi
\def\RestoreCatcodes{}
\count@=0 
\loop
\edef\RestoreCatcodes{
\RestoreCatcodes
\catcode\the\count@=\the\catcode\count@ \relax
}\ifnum\count@<255 
\advance\count@ 1 
\repeat
\def\RangeCatcodeInvalid#1#2{
\count@=#1 \relax
\loop
\catcode\count@=15 
\ifnum\count@<#2 \relax
\advance\count@ 1
\repeat
}\def\RangeCatcodeCheck#1#2#3{
\count@=#1 \relax
\loop
\ifnum#3=\catcode\count@
\else
\errmessage{Character \the\count@ with wrong catcode \the\catcode\count@ instead of \number#3}
\fi
\ifnum\count@<#2 \relax
\advance\count@ 1
\repeat
\def\space{ }
\expandafter\ifx\csname LoadCommand\endcsname\relax
\def\LoadCommand{\input iflang.sty \relax} 
\fi
\def\Test{ 
\RangeCatcodeInvalid{0}{47}
\RangeCatcodeInvalid{58}{64}
\RangeCatcodeInvalid{91}{96}
\RangeCatcodeInvalid{123}{255}
\catcode`\@=12 
\catcode`\\=0 
\catcode`\%=14 
\LoadCommand
\RangeCatcodeCheck{0}{36}{15}
\RangeCatcodeCheck{37}{37}{14}
\RangeCatcodeCheck{38}{47}{15}
\RangeCatcodeCheck{48}{57}{12}
\RangeCatcodeCheck{58}{63}{15}
\RangeCatcodeCheck{64}{64}{12}
\RangeCatcodeCheck{65}{90}{11}
\RangeCatcodeCheck{91}{91}{15}
\RangeCatcodeCheck{92}{92}{0}
\RangeCatcodeCheck{93}{96}{15}
\RangeCatcodeCheck{97}{122}{11}
\space}
\NeedsTeXFormat{LaTeX2e}
\documentclass{minimal}
\usepackage{qstest}
\usepackage[english,naustrian,ngerman]{babel}
\usepackage{iflang}
\begin{document}
\begin{qstest}{IfLanguagePatterns}{language, pattern}
\def\test#1#2{\Expect*{\IfLanguagePatterns{#1}{true}{false}}{#2}}
\test{ngerman}{true}\test{naustrian}{true}\test{english}{false}\test{foobar}{false}
\end{qstest}
\begin{qstest}{IfLanguageName}{language, name}
\def\test#1#2{\Expect*{\IfLanguageName{#1}{true}{false}}{#2}}
\test{ngerman}{true}\test{naustrian}{false}\selectlanguage{naustrian}\test{ngerman}{false}\test{naustrian}{true}\test{foobar}{false}
% \def\languagename{naustrian}
% \edef\languagename{\string naustrian}
% \def\languagename{naustrian}
% \makeatletter
% \@onelevel@sanitize\languagename
% \test{naustrian}{true}\test{ngerman}{false}
% \def\languagename{naustrian}\def\xaustrian{naustrian}\def\xgerman{ngerman}
% \test{\xaustrian}{true}\test{\xgerman}{false}
% \def\languagename{\xaustrian}
\end{qstest}
\end{document}
\begin{qstest}{IfDefined}{defined}
\makeatletter
\let\foobar\relax
\Expect*{\IfLang@IfDefined{foobar}{true}{false}}{false}\
\Expect*{\ifx\foobar\relax true\else false\fi}{true}\
\let\foobar\UNDEFINED
\Expect*{\IfLang@IfDefined{foobar}{true}{false}}{false}\
\Expect*{\ifx\foobar\relax true\else false\fi}{false}\
\Expect*{\ifx\foobar\UNDEFINED true\else false\fi}{true}\
\end{qstest}
\end{document}

3.3 Test with plain \TeX\ and $\varepsilon$-\TeX

\begin{qstest}{test2}{}{test3}
\%\% Format `etex' based on `language.def'
\input iflang.sty
\catcode4=12
\def\TestGeneric#1#2#3{
\begingroup
\edef\x{#1{#2}{true}{false}}\
\edef\y{#3}\
\ifx\x\y
\else
\errmessage{Failed test: \string#1{#2} <> #3}\
\fi
\endgroup}
\def\TestPatterns{\TestGeneric\IfLanguagePatterns}
\def\TestName{\TestGeneric\IfLanguageName}
\TestPatterns{USenglish}{true}
\TestPatterns{ngerman}{false}
\TestName{USenglish}{true}
\TestName{ngerman}{false}
\uselanguage{ngerman}
\TestPatterns{USenglish}{false}
\TestPatterns{ngerman}{true}
\TestName{USenglish}{false}
\TestName{ngerman}{true}
\csname @@end\endcsname
\end
3.4 Test with plain \TeX and without ε-\TeX/pdf\TeX

\begin{verbatim}
\let\ifcsname\UNDEFINED
\let\pdfstrcmp\UNDEFINED
\input iflang.sty
\catcode64=11
\def\TestDefined#1{% 
  \IfLang@IfDefined{foobar}{}{}%
  \ifx\foobar#1%
  \else
    \errmessage{Failed test: \string\foobar <> \string#1}%
  \fi
}\let\foobar\relax
\TestDefined\relax
\let\foobar\UNDEFINED
\TestDefined\relax

\def\strip@prefix#1>{}
\def\@onelevel@sanitize#1{%
  \edef#1{\expandafter\strip@prefix\meaning#1}%
}\def\TestCompare#1#2#3{%
  \begingroup
    \edef\x{%
      \if\IfLang@StrEqual{#1}{#2}%
        true%
      \else
        false%
      \fi}
    \def\expect{#3}
    \ifx\x\expect
    \else
      \def\a{#1}
      \@onelevel@sanitize\a
      \def\b{#2}
      \@onelevel@sanitize\b
      \errmessage{Failed test: `\a'='\b' <> \expect}%
    \fi
  \endgroup
}\TestCompare{junk}{junk}{true}
\TestCompare{}{}{true}
\TestCompare{a}{b}{false}
\TestCompare{aa}{bb}{false}
\def\a{ax}
\def\b{bx}
\def\c{\a\b}
\def\d{\c\b}
\def\exch#1#2{#2#1}
\def\gobble#1{}
\TestCompare{\gobble a}{}{true}
\TestCompare{}{\gobble a}{true}
\TestCompare\a\b\a\b\a\b\a\b\a\b\a\b\a\b\a\b\a\b\a\b\a\b\a\b\a\b\a\b\a\b\a\b\a\b\a\b\a\b\a\b\a\b% 
\end{verbatim}

\csname @@end\endcsname
\end
4 Installation

4.1 Download

Package. This package is available on CTAN\textsuperscript{1}:

\texttt{ctan:macros/latex/contrib/oberdiek/iflang.dtx} The source file.

\texttt{ctan:macros/latex/contrib/oberdiek/iflang.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.

\texttt{ctan:install/macros/latex/contrib/oberdiek.tds.zip}

TDS refers to the standard “A Directory Structure for \TeX\ Files” (\texttt{ctan:tds/tds.pdf}). Directories with \texttt{texmf} in their name are usually organized this way.

4.2 Bundle installation

Unpacking. Unpack the \texttt{oberdiek.tds.zip} in the TDS tree (also known as \texttt{texmf} tree) of your choice. Example (linux):

\begin{verbatim}
unzip oberdiek.tds.zip -d ~/texmf
\end{verbatim}

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

\begin{verbatim}
chmod +x scripts/oberdiek/pdfatfi.pl
cp scripts/oberdiek/pdfatfi.pl /usr/local/bin/
\end{verbatim}

4.3 Package installation

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

\begin{verbatim}
tex iflang.dtx
\end{verbatim}

TDS. Now the different files must be moved into the different directories in your installation TDS tree (also known as \texttt{texmf} tree):

\begin{verbatim}
iflang.sty → tex/generic/oberdiek/iflang.sty
iflang.pdf → doc/latex/oberdiek/iflang.pdf
test/iflang-test1.tex → doc/latex/oberdiek/test/iflang-test1.tex
test/iflang-test2.tex → doc/latex/oberdiek/test/iflang-test2.tex
test/iflang-test3.tex → doc/latex/oberdiek/test/iflang-test3.tex
test/iflang-test4.tex → doc/latex/oberdiek/test/iflang-test4.tex
test/iflang-test5.tex → doc/latex/oberdiek/test/iflang-test5.tex
iflang.dtx → source/latex/oberdiek/iflang.dtx
\end{verbatim}

If you have a \texttt{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 \texttt{docstrip}.

\textsuperscript{1}http://ctan.org/pkg/iflang
4.4 Refresh file name databases

If your \TeX{} distribution (\TeX{}, \miktex{}, ...) relies on file name databases, you must refresh these. For example, \TeX{} users run `texhash` or `mktexlsr`.

4.5 Some details for the interested

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:

```
\let\install=y\input{iflang.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\LaTeX{}:

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

5 Catalogue

The following XML file can be used as source for the \TeX{} 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 `iflang.xml`.

```
<?xml version='1.0' encoding='us-ascii'?>
<!DOCTYPE entry SYSTEM 'catalogue.dtd'>
<entry datestamp='$Date$' modifier='$Author$' id='iflang'>
  <name>iflang</name>
  <caption>Expandable checks for the current language.</caption>
  <authorref id='auth:oberdiek'/>
  <copyright owner='Heiko Oberdiek' year='2007'/>
  <license type='lppl1.3'/>
  <version number='1.6'/>
  <description>
    This package provides expandable checks for the current language
    based on macro \texttt{\languagename} or hyphenation patterns.
  </description>
  <documentation details='Package documentation'
    href='ctan:/macros/latex/contrib/oberdiek/iflang.pdf'/>
  <ctan file='true' path='macros/latex/contrib/oberdiek/iflang.pdf'/>
  <miktex location='oberdiek'/>
  <texlive location='oberdiek'/>
  <install path='macros/latex/contrib/oberdiek/oberdiek.tds.zip'/>
</entry>
</catalogue>
```
6 Acknowledgement

I wish to thank:

Markus Kohm Useful hints for version 1.2.

7 History

[2007/04/10 v1.0]
• First public version.

[2007/04/11 v1.1]
• Line ends sanitized.

[2007/04/12 v1.2]
• Initialization of \language in case of etex.src.
• Some sanity tests added.
• Documentation improved.

[2007/04/26 v1.3]
• Use of package infwarerr.

[2007/09/09 v1.4]
• Bug fix: \IfLang@StrEqual \rightarrow \IfLangStrEqual (Gabriele Balducci).
• Catcode section rewritten.

[2007/11/11 v1.5]
• Use of package pdftexcmds for \LaTeX support.

[2016/05/16 v1.6]
• Documentation updates.

8 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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