# The Translator Package Manual for Version 1.00

http://sourceforge.net/projects/latex-beamer

Till Tantau mailto:tantau@users.sourceforge.net

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# Contents

1	$\operatorname{Intr}$	roduction	3
	1.1	Overview of the Package	3
	1.2	How to Read This Manual	3
	1.3	Contributing	3
	1.4	Getting Help	3
2	Inst	tallation	4
	2.1	Package and Driver Versions	4
	2.2	Installing Prebundled Packages	4
	2.3	Installation in a texmf Tree	4
	2.4	Updating the Installation	5
3	Bas	sic Concepts	5
	3.1	Keys	5
	3.2	Language Names	5
	3.3	Language Paths	5
	3.4	Dictionaries	6
4	Usa	oge.	6
_	4.1	Basic Usage	6
	4.2	Providing Translations	6
	4.3	Creating and Using Dictionaries	7
	4.4	Creating a User Dictionaries	9
	4.5	Translating Keys	9
	4.6	Language Path and Language Substitution	10
	4.7	Package Loading Process	10
5	Lice	enses	11
	5.1	The GNU Public License, Version 2	11
		5.1.1 Preamble	11
		5.1.2 Terms and Conditions For Copying, Distribution and Modification	11
		5.1.3 No Warranty	14
	5.2	The LATEX Project Public License, Version 1.3c 2006-05-20	14
		5.2.1 Preamble	14
		5.2.2 Definitions	14
		5.2.3 Conditions on Distribution and Modification	15
		5.2.4 No Warranty	16
		5.2.5 Maintenance of The Work	16
		5.2.6 Whether and How to Distribute Works under This License	17
		5.2.7 Choosing This License or Another License	17
		5.2.8 A Recommendation on Modification Without Distribution	17
		5.2.9 How to Use This License	18
		5.2.10 Derived Works That Are Not Replacements	18
		5.2.11 Important Recommendations	18
In	dex		19

# 1 Introduction

# 1.1 Overview of the Package

The translator package is a LATEX package that provides a flexible mechanism for translating individual words into different languages. For example, it can be used to translate a word like "figure" into, say, the German word "Abbildung". Such a translation mechanism is useful when the author of some package would like to localize the package such that texts are correctly translated into the language preferred by the user. The translator package is *not* intended to be used to automatically translate more than a few words.

You may wonder whether the translator package is really necessary since there is the (very nice) babel package available for LATEX. This package already provides translations for words like "figure". Unfortunately, the architecture of the babel package was designed in such a way that there is no way of adding translations of new words to the (very short) list of translations directly build into babel.

The translator package was specifically designed to allow an easy extension of the vocabulary. It is both possible to add new words that should be translated and translations of these words.

The translator package can be used together with babel. In this case, babel is used for language-specific things like special quotation marks and input shortcuts, while translator is used for the translation of words.

#### 1.2 How to Read This Manual

This manual explains the commands of the translator package and its usage. The "public" commands and environments provided by the translator package are described throughout the text. In each such description, the described command, environment or option is printed in red. Text shown in green is optional and can be left out.

In the following documentation, the installation is explained first, followed by an overview of the basic concepts used. Then, I explain the usage of the package.

# 1.3 Contributing

Since this package is about internationalization, it needs input from people who can contribute translations to their native tongue.

In order to submit dictionaries, please do the following:

- 1. Read this manual and make sure you understand the basic concepts.
- 2. Find out whether the translations should be part of the translator package or part of another package. In general, submit translations and new keys to the translator project only if they are of public interest.
  - For example, translations for keys like figure should be send to the translator project. Translations for keys that are part of a special package should be send to the author of the package.
- 3. If you are sure that the translations should go to the translator package, create a dictionary of the correct name (see this documentation once more).
- 4. Finally, submit the dictionary using the correct forum on the development site.

### 1.4 Getting Help

When you need help with the package, please do the following:

- 1. Read this manual, at least the part that has to do with your problem.
- 2. Consider rereading the manual, especially the part that has to do with your problem.
- 3. If that does not solve the problem, try having a look at the development page for translator (see the title of this document). Perhaps someone has already reported a similar problem and someone has found a solution.

- 4. On the website you will find numerous forums for getting help. There, you can write to help forums, file bug reports, join mailing lists, and so on.
- 5. Before you file a bug report, especially a bug report concerning the installation, make sure that this is really a bug. In particular, have a look at the .log file that results when you TeX your files. This .log file should show that all the right files are loaded from the right directories. Nearly all installation problems can be resolved by looking at the .log file.
- 6. As a last resort you can try to email me (the author). I do not mind getting emails, I simply get way too many of them. Because of this, I cannot guarantee that your emails will be answered timely or even at all. Your chances that your problem will be fixed are somewhat higher if you use the forums and mailing lists. (Naturally, I read the lists and answer questions when I have the time).
- 7. Please, do not phone me in my office.

### 2 Installation

This package is distributed under the GPL license and under the LATEX public license, see Sections 5.1 and 5.2. Typically, the package will already be installed on your system. Naturally, in this case you do not need to worry about the installation process at all and you can skip the rest of this section.

### 2.1 Package and Driver Versions

This documentation is part of version 1.00 of the translator package. To use it, you just need a reasonably up-to-date LATEX-system, but the requirements are rather low. There are no special dependencies.

# 2.2 Installing Prebundled Packages

I do not create or manage prebundled packages of translator, but perhaps other people might be willing to do so. If you have a problem with installing such a bundle, you might wish to have a look at the page of whoever created the package.

#### 2.3 Installation in a texmf Tree

For a permanent installation, you place the files of the the TRANSLATOR package in an appropriate texmf tree. When you ask TeX to use a certain class or package, it usually looks for the necessary files in so-called texmf trees. These trees are simply huge directories that contain these files. By default, TeX looks for files in three different texmf trees:

- The root texmf tree, which is usually located at /usr/share/texmf/ or c:\texmf\ or somewhere similar.
- The local texmf tree, which is usually located at /usr/local/share/texmf/ or c:\localtexmf\ or somewhere similar.
- Your personal texmf tree, which is usually located in your home directory at ~/texmf/ or ~/Library/texmf/.

You should install the package either in the local tree or in your personal tree, depending on whether you have write access to the local tree. Installation in the root tree can cause problems, since an update of the whole TEX installation will replace this whole tree.

Inside whatever texmf-tree that you have chosen, create the sub-directory texmf/tex/latex/translator and put everything from the package in this directory.

Finally, you may need to run the program texhash to rebuild TEX's cache. In MikTEX, there is a menu option for this.

# 2.4 Updating the Installation

To update your installation from a previous version, all you need to do is to replace everything in the directory texmf/tex/latex/translator with the files of the new version. The easiest way to do this is to first delete the old version and then proceed as described above.

Sometimes, there are changes in the syntax of certain command from version to version. If things no longer work that used to work, you may wish to have a look at the release notes and at the change log.

# 3 Basic Concepts

### 3.1 Keys

The main purpose of the translator package is to provide translations for *keys*. Typically, a key is an English word like Figure and the German translation for this key is "Abbildung".

For a concept like "figures" a single key typically is not enough:

- 1. It is sometimes necessary to translate a group of words like "Table of figures" as a whole. While these are three words in English, the German translation in just a single word: "Abbildungsverzeichnis".
- 2. Uppercase and lowercase letters may cause problems. Suppose we provide a translation for the key Figure. Then what happens when we want to use this word in normal text, spelled with a lowercase first letter? We could use TEX's functions to turn the translation into lowercase, but that would be wrong with the German translation "Abbildung", which is always spelled with a capital letter.
- 3. Plurals may also cause problems. If we know the translation for "Figure", that does not mean that we know the translation for "Figures" (which is "Abbildungen" in German).

Because of these problems, there are many keys for the single concept of "figures": Figure, figure, Figures, and figures. The first key is used for translations of "figure" when used in a headline in singular. The last key is used for translations of "figure" when used in normal text in plural.

A key may contain spaces, so Table of figures is a permissible key.

Keys are normally English texts whose English translation is the same as the key, but this need not be the case. Theoretically, a key could be anything. However, since the key is used as a last fallback when no translation whatsoever is available, a key should be readable by itself.

### 3.2 Language Names

The translator package uses names for languages that are different from the names used by other packages like babel. The reason for this is that the names used by babel are a bit of a mess, so I decided to clean things up for the translator package. However, mappings from babel names to translator names are provided.

The names used by the translator package are the English names commonly used for these languages. Thus, the name for the English language is English, the name for German is German.

Variants of a language get their own name: The British version of English is called BritishEnglish, the US-version is called AmericanEnglish.

For German there is the special problem of pre-1998 as opposed to the current (not yet fixed) spelling. The language German reflects the current official spelling, but German1997 refers to the spelling used in 1997.

### 3.3 Language Paths

When you request a translation for a key, the translator package will try to provide the translation for the current *language*. Examples of languages are German or English.

When the translator looks up the translation for the given key in the current language, it may fail to find a translation. In this case, the translator will try a fallback strategy: It keeps track of a *language path* and successively tries to find translations for each language on this path.

Language paths are not only useful for fallbacks. They are also used for situations where a language is a variant of another language. For example, when the translator looks for the translation for a key in Austrian, the

language path starts with Austrian, followed by German. Then, a dictionary for Austrian only needs to provide translations for those keys where Austrian differs from German.

#### 3.4 Dictionaries

The translations of keys are typically provided by *dictionaries*. A dictionary contains the translations of a specific set of keys into a specific language. For example, a dictionary might contain the translations of the names of months into the language German. Another dictionary might contain the translations of the numbers into French.

# 4 Usage

# 4.1 Basic Usage

Here is a typical example of how to use the package:

```
\documentclass[german]{article}
\usepackage{babel}
\usepackage{some-package-that-uses-translator}
\begin{document}
...
\end{document}
```

As can be seen, things really happen behind the scenes, so, typically, you do not really need to do anything. It is the job of other package to load the translator package, to load the dictionaries and to request translations of keys.

# 4.2 Providing Translations

There are several commands to tell the translator package what the translation of a given key is. As said before, as a normal author you typically need not provide such translations explicitly, they are loaded automatically. However, there are two situations in which you need to provide translations:

- 1. You do not like the existing translation and you would like to provide a new one.
- 2. You are writing a dictionary.

You provide a translation using one of the following commands:

```
\mbox{\  lation}[\langle options \rangle] \{\langle key \rangle\} \{\langle translation \rangle\}
```

This command defines the translation of  $\langle key \rangle$  to be  $\langle translation \rangle$  in the language specified by the  $\langle options \rangle$ . You can only use this command if the translation is really "new" in the sense that no translation for the keys has yet been given for the language. If there is already a translation, an error message will be printed. The following  $\langle options \rangle$  may be given:

• to= $\langle language \rangle$  This options tells the translator, that the translation  $\langle translation \rangle$  of  $\langle keys \rangle$  applies to the language  $\langle language \rangle$ .

Inside a dictionary file (see Section 4.3), this option is set automatically to the language of the dictionary.

Example: \newtranslation[to=German]{figure}{Abbildung}
Example: \newtranslation[to=German]{Figures}{Abbildungen}

```
\racklet \rangle renewtranslation [\langle options \rangle] \{\langle translation \rangle \}
```

This command works like \newtranslation, only it will redefine an existing translation.

```
\providetranslation[\langle options \rangle] \{\langle key \rangle\} \{\langle translation \rangle\}
```

This command works like \newtranslation, but no error message will be printed if the translation already exists. It this case, the existing translation is not changed.

This command should be used by dictionary authors since their translations should not overrule any translations given by document authors or other dictionary authors.

```
\deftranslation[\langle options \rangle] \{\langle key \rangle\} \{\langle translation \rangle\}
```

This command defines the translation "no matter what". An existing translation will be overwritten.

This command should typically used by document authors to install their preferred translations.

Example: \deftranslation[to=German]{figure}{Figur}

Here is an example where a translation is provided by a document author:

```
\documentclass[ngerman]{article}
\usepackage{babel}
\usepackage{some-package-that-uses-translator}
\deftranslation[to=German]{Sketch of proof}{Beweisskizze}
\begin{document}
...
\end{document}
```

### 4.3 Creating and Using Dictionaries

Two kind of people will create *dictionaries*: First, package authors will create dictionaries containing translations for the (new) keys used in the package. Second, document authors can create their own private dictionaries that overrule settings from other dictionaries or that provide missing translations.

There is not only one dictionary per language. Rather, many different dictionaries may be used by TRANSLATOR when it tries to find a translation. This makes it easy to add new translations: Instead of having to change translator's main dictionaries (which involves, among other things, the release of a new version of the translator package), package authors can just add a new dictionary containing just the keys needed for the package.

Dictionaries are named according to the following rule: The name of the dictionary must start with its kind. The kind tells translator which kind of keys the dictionary contains. For example, the dictionaries of the kind translator-months-dictionary contain keys like January (note that this is a key, not a translation). Following the kind, the name of a dictionary must have a dash. Then comes the language for which the dictionary file provides translations. Finally, the file name must end with .dict.

To continue the example of the month dictionary, for the German language the dictionary is called

```
translator-months-dictionary-German.dict
```

Its contents is the following:

\ProvidesDictionary{translator-months-dictionary}{German}

```
\providetranslation{January}{Januar}
\providetranslation{February}{Februar}
\providetranslation{March}{M\"arz}
\providetranslation{April}{April}
\providetranslation{May}{Mai}
\providetranslation{June}{Juni}
\providetranslation{July}{Juli}
\providetranslation{August}{August}
\providetranslation{September}{September}
\providetranslation{October}{Oktober}
\providetranslation{November}{November}
\providetranslation{December}{Dezember}
```

Note that the \providetranslation command does not need the option [to=German]. Inside a dictionary file TRANSLATOR will always set the default translation language to the language provided by the dictionary. However, you can still specify the language, if you prefer.

The \ProvidesDictionary command currently only prints a message in the log-files.

```
\ProvidesDictionary{\langle kind \rangle} {\langle language \rangle} [\langle version \rangle]
```

This command currently only prints a message in the log-files. The format is the same as for LATEX's \ProvidesPackage command.

Dictionaries are stored in a decentralized manner: A special dictionary for a package will typically be stored somewhere in the vicinity of the package. For this reasons, TRANSLATOR needs to be told which kinds of dictionaries should be loaded and which languages should be used. This is accomplished using the following two commands:

#### $\usedictionary{\langle kind \rangle}$

This command tells the translator package, that at the beginning of the document it should load all dictionaries of kind  $\langle kind \rangle$  for the languages used in the document. Note that the dictionaries are not loaded immediately, but only at the beginning of the document.

If no dictionary of the given kind exists for one of the language, nothing bad happens.

Invocations of this command accumulate, that is, you can call it multiple times for different dictionaries.

#### $\uselanguage {\langle list \ of \ languages \rangle}$

This command tells the translator package that it should load the dictionaries for all languages in the  $\langle list\ of\ languages \rangle$ . The dictionaries are loaded at the beginning of the document.

Here is an example of how all of this works: Suppose you wish to create a new package for drawing, say, chess boards. Let us call this package chess. In the file chess.sty we could now write the following:

```
// This is chess.sty
\RequirePackage{translator}
\usedictionary{chess}
\newcommand\MoveKnight[2]{%
  \translate{knight}
Now we create dictionaries like the following:
// This is chess-German.dict
\ProvidesDictionary{chess}{German}
\providetranslation{chess}{Schach}
\providetranslation{knight}{Springer}
\providetranslation{bishop}{L\"aufer}
. . .
and
// This is chess-English.dict
\ProvidesDictionary{chess}{English}
\providetranslation{chess}{chass}
\providetranslation{knight}{knight}
\providetranslation{bishop}{bishop}
. . .
```

Here are a few things to note:

- The package chess.sty does not use the command \uselanguage. After all, the package does not know (or care) about the language used in the final document. It only needs to tell the translator package that it will use the dictionary chess.
- You may wonder why we need an English dictionary. After all, the keys themselves are the ultimate fallbacks if no other translation is available. The answer to this question is that, first of all, English should be treated like any other language. Second, there are some situations in which there is a "better" English translation than the key itself. An example is explained next.
- The keys we chose may not be optimal. What happens, if some other package, perhaps on medieval architecture, also needs translations of knights and bishops. However, in this different context, the translations of knight and bishop are totally different, namely Ritter and Bischof.

Thus, it might be a good idea to add something to the key to make it clear that the "chess bishop" is meant:

```
// This is chess-German.dict
\providetranslation{knight (chess)}{Springer}
\providetranslation{bishop (chess)}{L\"aufer}

// This is chess-English.dict
\providetranslation{knight (chess)}{knight}
\providetranslation{bishop (chess)}{bishop}
```

# 4.4 Creating a User Dictionaries

There are two ways of creating a personal set of translations. First, you can simply add commands like

```
\deftranslation[to=German]{figure}{Figur}
```

to your personal macro files.

Second, you can create a personal dictionary file as follows: In your document you say

\documentclass[ngerman]{article}

```
\usepackage{translator}
\usedictionary{my-personal-dictionary}
and then you create the following file somewhere where TEX can find it:
// This is file my-personal-dictionary-German.dict
\ProvidesDictionary{my-personal-dictionary}{German}
```

\deftranslation{figure}{Figur}

#### 4.5 Translating Keys

Once the dictionaries and languages have been setup, you can translate keys using the following commands:

```
\translate[\langle options \rangle] \{\langle key \rangle\}
```

This command will insert the translation of the  $\langle key \rangle$  at the current position into the text. The command is robust.

The translation process of  $\langle key \rangle$  works as follows: Translator iterates over all languages on the current language path (see Section 4.6). For each language on the path, Translator checks whether a translation is available for the  $\langle key \rangle$ . For the first language for which this is the case, the translation is used. If there is no translation available for any language on the path, the  $\langle key \rangle$  itself is used as the translation.

```
Example: \caption{\translate{Figure}~2.}
```

The following options may be given:

• to= $\langle language \rangle$  This option overrules the language path setting and installs  $\langle language \rangle$  as the target language(s) for which TRANSLATOR tries to find a translation.

```
\translatelet[\langle options \rangle] \{\langle macro \rangle\} \{\langle key \rangle\}
```

This command works like the \translate command, only it will not insert the translation into the text, but will set the macro  $\langle macro \rangle$  to the translation found by the \translate command.

Example: \translatelet\localfigure{figure}

# 4.6 Language Path and Language Substitution

#### $\langle languagepath \{ \langle languagepath \rangle \}$

This command sets the language path that is searched when TRANSLATOR looks for a key.

The default value of the language path is \languagename, English. The \languagename is the standard TEX macro that expands to the current language. Typically, this is exactly what you want and there is no real need to change this default language path.

There is a problem with the names used in the macro \languagename. These names, like ngerman, are not the ones used by TRANSLATOR and we somehow have to tell the translator about aliases for cryptic language names like ngerman. This is done using the following command:

```
\label{language} \label{language} $$ \arrowvert and $$ \arrowver
```

This command tells the translator that the language  $\langle name \rangle$  should be replaced by the language in the  $\langle language\ list \rangle$ .

Example: \languagealias{ngerman}{German}

Example: \languagealias{german}{German1997,German}

For the languages used by the babel package, the aliases are automatically setup, so you typically do not need to call either \languagepath or \languagepatias.

#### 4.7 Package Loading Process

The translator package is loaded "in stages":

- 1. First, some package or the document author requests the translator package is loaded.
- 2. The translator package allows options like ngerman to be given. These options cause the necessary aliases and the correct translator languages to be requested.
- 3. During the preamble, packages and the document author request creating dictionary kinds and certain languages to be used. There requests are protocoled.
- 4. At the beginning of the document (\begin{document}) the requested dictionary-language-pairs are loaded.

The first thing that needs to be done is to load the package. Typically, this is done automatically by some other package, but you may wish to include it directly:

```
\usepackage[\langle options \rangle] \{ translator \}
```

When you load the package, you can specify (multiple) babel languages as  $\langle options \rangle$ . The effect of giving such an option is the following: It causes the translator package to call \uselanguage for the appropriate translation of the babel language names to translator's language names. It also causes \languagealias to be called for the languages.

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### 5.1 The GNU Public License, Version 2

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The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

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### 5.2 The LATEX Project Public License, Version 1.3c 2006-05-20

#### 5.2.1 Preamble

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#### 5.2.2 Definitions

In this license document the following terms are used:

Work Any work being distributed under this License.

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A Base Interpreter may depend on external components but these are not considered part of the Base Interpreter provided that each external component clearly identifies itself whenever it is used interactively. Unless explicitly specified when applying the license to the Work, the only applicable Base Interpreter is a 'LATEX-Format' or in the case of files belonging to the 'LATEX-format' a program implementing the 'TEX language'.

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The Work has the status 'author-maintained' if the Copyright Holder explicitly and prominently states near the primary copyright notice in the Work that the Work can only be maintained by the Copyright Holder or simply that it is 'author-maintained'.

The Work has the status 'maintained' if there is a Current Maintainer who has indicated in the Work that they are willing to receive error reports for the Work (for example, by supplying a valid e-mail address). It is not required for the Current Maintainer to acknowledge or act upon these error reports.

The Work changes from status 'maintained' to 'unmaintained' if there is no Current Maintainer, or the person stated to be Current Maintainer of the work cannot be reached through the indicated means of communication for a period of six months, and there are no other significant signs of active maintenance.

You can become the Current Maintainer of the Work by agreement with any existing Current Maintainer to take over this role.

If the Work is unmaintained, you can become the Current Maintainer of the Work through the following steps:

- 1. Make a reasonable attempt to trace the Current Maintainer (and the Copyright Holder, if the two differ) through the means of an Internet or similar search.
- 2. If this search is successful, then enquire whether the Work is still maintained.
  - (a) If it is being maintained, then ask the Current Maintainer to update their communication data within one month.
  - (b) If the search is unsuccessful or no action to resume active maintenance is taken by the Current Maintainer, then announce within the pertinent community your intention to take over maintenance. (If the Work is a LATEX work, this could be done, for example, by posting to comp.text.tex.)
- 3. (a) If the Current Maintainer is reachable and agrees to pass maintenance of the Work to you, then this takes effect immediately upon announcement.
  - (b) If the Current Maintainer is not reachable and the Copyright Holder agrees that maintenance of the Work be passed to you, then this takes effect immediately upon announcement.
- 4. If you make an 'intention announcement' as described in 2b above and after three months your intention is challenged neither by the Current Maintainer nor by the Copyright Holder nor by other people, then you may arrange for the Work to be changed so as to name you as the (new) Current Maintainer.
- 5. If the previously unreachable Current Maintainer becomes reachable once more within three months of a change completed under the terms of 3b or 4, then that Current Maintainer must become or remain the Current Maintainer upon request provided they then update their communication data within one month.

A change in the Current Maintainer does not, of itself, alter the fact that the Work is distributed under the LPPL license.

If you become the Current Maintainer of the Work, you should immediately provide, within the Work, a prominent and unambiguous statement of your status as Current Maintainer. You should also announce your new status to the same pertinent community as in 2b above.

#### 5.2.6 Whether and How to Distribute Works under This License

This section contains important instructions, examples, and recommendations for authors who are considering distributing their works under this license. These authors are addressed as 'you' in this section.

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#### 5.2.8 A Recommendation on Modification Without Distribution

It is wise never to modify a component of the Work, even for your own personal use, without also meeting the above conditions for distributing the modified component. While you might intend that such modifications will never be distributed, often this will happen by accident – you may forget that you have modified that component; or it may not occur to you when allowing others to access the modified version that you are thus distributing it and violating the conditions of this license in ways that could have legal implications and, worse, cause problems for the community. It is therefore usually in your best interest to keep your copy of the Work identical with the public one. Many works provide ways to control the behavior of that work without altering any of its licensed components.

#### 5.2.9 How to Use This License

To use this license, place in each of the components of your work both an explicit copyright notice including your name and the year the work was authored and/or last substantially modified. Include also a statement that the distribution and/or modification of that component is constrained by the conditions in this license. Here is an example of such a notice and statement:

```
%% pig.dtx
%% Copyright 2005 M. Y. Name
%
% This work may be distributed and/or modified under the
% conditions of the LaTeX Project Public License, either version 1.3
% of this license or (at your option) any later version.
% The latest version of this license is in
% http://www.latex-project.org/lppl.txt
% and version 1.3 or later is part of all distributions of LaTeX
% version 2005/12/01 or later.
%
% This work has the LPPL maintenance status 'maintained'.
%
% The Current Maintainer of this work is M. Y. Name.
%
% This work consists of the files pig.dtx and pig.ins
% and the derived file pig.sty.
```

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If you do not want the Maintenance section of LPPL to apply to your Work, change 'maintained' above into 'author-maintained'. However, we recommend that you use 'maintained' as the Maintenance section was added in order to ensure that your Work remains useful to the community even when you can no longer maintain and support it yourself.

#### 5.2.10 Derived Works That Are Not Replacements

Several clauses of the LPPL specify means to provide reliability and stability for the user community. They therefore concern themselves with the case that a Derived Work is intended to be used as a (compatible or incompatible) replacement of the original Work. If this is not the case (e.g., if a few lines of code are reused for a completely different task), then clauses 6b and 6d shall not apply.

#### 5.2.11 Important Recommendations

**Defining What Constitutes the Work** The LPPL requires that distributions of the Work contain all the files of the Work. It is therefore important that you provide a way for the licensee to determine which files constitute the Work. This could, for example, be achieved by explicitly listing all the files of the Work near the copyright notice of each file or by using a line such as:

```
% This work consists of all files listed in manifest.txt.
```

in that place. In the absence of an unequivocal list it might be impossible for the licensee to determine what is considered by you to comprise the Work and, in such a case, the licensee would be entitled to make reasonable conjectures as to which files comprise the Work.

# Index

This index only contains automatically generated entries, sorry. A good index should also contain carefully selected keywords.

```
\verb|\deftranslation|, 7
\label{languagealias} 10
\verb|\languagepath|, 10
\verb|\newtranslation|, 6
Options
     \mathtt{to},\,6,\,10
Packages and files
     translator, 10
\verb|\ProvidesDictionary|, 8
\provide translation, 7
\verb|\renewtranslation|, 6
to option, 6, 10
\translate, 9
\translatelet, 10
translator package, 10
\verb|\usedictionary|, 8
\verb|\uselanguage|, 8
```