

ABSTRACT

einfart is part of the minimalist class series, whose name is taken from German word “einfach” (“simple”), combined with the first three letters of “artikel” (“article”). The entire collection includes minimart and einfart for typesetting articles, and minimbook and simplivre for typesetting books. My original intention in designing them was to write drafts and notes that look simple yet not shabby.

einfart has multi-language support, including Chinese (simplified and traditional), English, French, German, Italian, Japanese, Portuguese (European and Brazilian), Russian and Spanish. These languages can be switched seamlessly in a single document. Due to the usage of custom fonts, einfart requires \LaTeX or \Lua\TeX to compile.

This documentation is typeset using einfart. You can think of it as a short introduction and demonstration.

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Before you start

- 1 In order to use the package or classes described here, you need to:
- 2 • install TeX Live or MikTeX of the latest possible version, and make sure that `minimalist`
- 3 and `projlib` are correctly installed in your \TeX system.
- 4 • be familiar with the basic usage of \LaTeX , and knows how to compile your document with
- 5 `pdf \LaTeX` , `X \LaTeX` or `Lua \LaTeX` .

1.1 | How to load it

1 One only needs to put

```
\documentclass{einfart}
```

2 as the first line to use the einfart class. Please note that you need to use either \LaTeX or
3 \LuaTeX engine to compile.

1.2 | Example - A complete document

4 Let's first look at a complete document.

```
1 \documentclass{einfart}
2 \usepackage{ProjLib}
3
4 \UseLanguage{French}
5
6 \begin{document}
7
8 \title{\langle title \rangle}
9 \author{\langle author \rangle}
10 \date{\PLdate{2022-04-01}}
11
12 \maketitle
13
14 \begin{abstract}
15     Ceci est un résumé. \dnf<Plus de contenu est nécessaire.>
16 \end{abstract}
17 \begin{keyword}
18     AAA, BBB, CCC, DDD, EEE
19 \end{keyword}
20
21 \section{Un théorème}
22
23 \begin{theorem}\label{thm:abc}
24     Ceci est un théorème.
25 \end{theorem}
26 Référence du théorème: \cref{thm:abc}
27
28 \end{document}
```

5 If you find this example a little complicated, don't worry. Let's now look at this example
6 piece by piece.

1.2.1 Initialization

```
\documentclass{einfart}
\usepackage{ProjLib}
```

- 1 Initialization is straightforward. The first line loads the document class `einfart`, and the
2 second line loads the `ProjLib` toolkit to obtain some additional functionalities.

1.2.2 Set the language

```
\UseLanguage{French}
```

- 3 This line indicates that French will be used in the document (by the way, if only English
4 appears in your article, then there is no need to set the language). You can also switch the
5 language in the same way later in the middle of the text. Supported languages include
6 Simplified Chinese, Traditional Chinese, Japanese, English, French, German, Spanish, Por-
7 tuguese, Brazilian Portuguese and Russian.
- 8 For detailed description of this command and more related commands, please refer to the
9 section on the multi-language support.

1.2.3 Title, author information, abstract and keywords

```
\title{\<title>}
\author{\<author>}
\date{\PLdate{2022-04-01}}
\maketitle

\begin{abstract}
  \<abstract>
\end{abstract}
\begin{keyword}
  \<keywords>
\end{keyword}
```

- 10 This part begins with the title and author information block. The example shows the basic
11 usage, but in fact, you can also write:

```
\author{\<author 1>}
\address{\<address 1>}
\email{\<email 1>}
\author{\<author 2>}
\address{\<address 2>}
\email{\<email 2>}
...
```

- 12 In addition, you may also write in the \mathcal{AMS} fashion, i.e.:

```
\title{\<title>}
```

```

\author{\langle author 1 \rangle}
\address{\langle address 1 \rangle}
\email{\langle email 1 \rangle}
\author{\langle author 2 \rangle}
\address{\langle address 2 \rangle}
\email{\langle email 2 \rangle}
\date{\PLdate{2022-04-01}}
\subjclass{*****}
\keywords{\langle keywords \rangle}

\begin{abstract}
  \langle abstract \rangle
\end{abstract}

\maketitle

```

1.2.4 Draft marks

```
\dnf<\langle some hint \rangle>
```

- 1 When you have some places that have not yet been finished yet, you can mark them with
- 2 this command, which is especially useful during the draft stage.

1.2.5 Theorem-like environments

```

\begin{theorem}\label{thm:abc}
  Ceci est un théorème.
\end{theorem}
Référence du théorème: \cref{thm:abc}

```

- 3 Commonly used theorem-like environments have been pre-defined. Also, when referencing
- 4 a theorem-like environment, it is recommended to use `\cref{\langle label \rangle}` — in this way, there
- 5 is no need to explicitly write down the name of the corresponding environment every time.

TIP

If you wish to switch to the standard class later, just replace the first two lines with:

```

\documentclass{article}
\usepackage[a4paper,margin=1in]{geometry}
\usepackage[hidelinks]{hyperref}
\usepackage[palatino,amsfashion]{ProjLib}

```

or to use the \mathcal{AMS} class:

```

\documentclass{amsart}
\usepackage[a4paper,margin=1in]{geometry}
\usepackage[hidelinks]{hyperref}
\usepackage[palatino]{ProjLib}

```

TIP

If you like the current document class, but want a more “plain” style, then you can use the option `classical`, like this:

```
\documentclass[classical]{einfart}
```

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On the default fonts

By default, `einfart` uses Palatino Linotype as the English font, FounderType’s YouSong and YouHei GBK as the Chinese fonts¹, and partially uses Neo Euler as the math font. Among them, Neo Euler can be downloaded at <https://github.com/khaledhosny/euler-otf>. The other fonts are not free, you need to purchase and install them on your own. When the corresponding font is not installed, fonts that comes with TeX Live will be used instead. In this case, the experience might be reduced.

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The options

`einfart` offers the following options:

- The language options `EN / english / English`, `FR / french / French`, etc.
 - For the option names of a specific language, please refer to `<language name>` in the next section. The first specified language will be used as the default language.
 - The language options are optional, mainly for increasing the compilation speed. Without them the result would be the same, only slower.
- `draft` or `fast`
 - The option `fast` enables a faster but slightly rougher style, main differences are:
 - * Use simpler math font configuration;
 - * Do not use `hyperref`;
 - * Enable the fast mode of `ProjLib` toolkit.

TIP

During the draft stage, it is recommended to use the `fast` option to speed up compilation. When in `fast` mode, there will be a watermark “DRAFT” to indicate that you are currently in the draft mode.

- `a4paper` or `b5paper`
 - Paper size options. The default paper size is 7in × 10in.
- `palatino`, `times`, `garamond`, `biolinum` | `useosf`
 - Font options. As the name suggest, font with corresponding name will be loaded.
 - The `useosf` option is used to enable the old-style figures.

¹For detail, please visit FounderType’s website: <https://www.foundertype.com>.

- `allowbf`
 - Allow boldface. When this option is enabled, the main title, the titles of all levels and the names of theorem-like environments will be bolded.
- `classical`
 - Classic mode. When this option is enabled, the style will become more regular: paragraphs are indented, the use of underlines are reduced, heading styles are changed, and the theorem styles will be much closer to common styles.

TIP

`allowbf + classical` is probably a good choice if you prefer traditional style.

- `useindent`
 - Use paragraph indentation instead of inter-paragraph spacing.
- `runin`
 - Use the “runin” style for `\subsubsection`
- `puretext` or `nothms`
 - Pure text mode. Does not load theorem-like environments.
- `nothmnum`
 - Theorem-like environments will not be numbered.

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Instructions by topic

4.1 | Language configuration

`einfart` has multi-language support, including Chinese (simplified and traditional), English, French, German, Italian, Japanese, Portuguese (European and Brazilian), Russian and Spanish. The language can be selected by the following macros:

- `\UseLanguage{⟨language name⟩}` is used to specify the language. The corresponding setting of the language will be applied after it. It can be used either in the preamble or in the main body. When no language is specified, “English” is selected by default.
- `\UseOtherLanguage{⟨language name⟩}{⟨content⟩}`, which uses the specified language settings to typeset `⟨content⟩`. Compared with `\UseLanguage`, it will not modify the line spacing, so line spacing would remain stable when CJK and Western texts are mixed.

`⟨language name⟩` can be (it is not case sensitive, for example, French and french have the same effect):

- Simplified Chinese: CN, Chinese, SChinese or SimplifiedChinese
- Traditional Chinese: TC, TChinese or TraditionalChinese
- English: EN or English
- French: FR or French
- German: DE, German or ngerman
- Italian: IT or Italian
- Portuguese: PT or Portuguese
- Portuguese (Brazilian): BR or Brazilian
- Spanish: ES or Spanish

- Japanese: JP or Japanese
- Russian: RU or Russian

In addition, you can also add new settings to selected language:

- `\AddLanguageSetting{<settings>}`
– Add <settings> to all supported languages.
- `\AddLanguageSetting(<language name>){<settings>}`
– Add <settings> to the selected language <language name>.

For example, `\AddLanguageSetting(German){\color{orange}}` can make all German text displayed in orange (of course, one then need to add `\AddLanguageSetting{\color{black}}` in order to correct the color of the text in other languages).

4.2 | Theorems and how to reference them

Environments such as `definition` and `theorem` have been preset and can be used directly.

More specifically, preset environments include: `assumption`, `axiom`, `conjecture`, `convention`, `corollary`, `definition`, `definition-proposition`, `definition-theorem`, `example`, `exercise`, `fact`, `hypothesis`, `lemma`, `notation`, `observation`, `problem`, `property`, `proposition`, `question`, `remark`, `theorem`, and the corresponding unnumbered version with an asterisk `*` in the name. The titles will change with the current language. For example, `theorem` will be displayed as “Theorem” in English mode and “Théorème” in French mode.

When referencing a theorem-like environment, it is recommended to use `\cref{<label>}`. In this way, there is no need to explicitly write down the name of the corresponding environment every time.

EXAMPLE

```
\begin{definition}[Strange things] \label{def: strange} ...
```

will produce

DEFINITION 4.1 | (Strange things) This is the definition of some strange objects. There is approximately an one-line space before and after the theorem environment, and there will be a symbol to mark the end of the environment. □

`\cref{def: strange}` will be displayed as: DEFINITION 4.1.

After using `\UseLanguage{French}`, a theorem will be displayed as:

THÉORÈME 4.2 | (Inutile) Un théorème en français. □

By default, when referenced, the name of the theorem always matches the language of the context in which the theorem is located. For example, the definition above is still displayed in English in the current French mode : DEFINITION 4.1 and THÉORÈME 4.2. If you want the name of the theorem to match the current context when referencing, you can add `regionalref` to the global options.

4.3 | Define a new theorem-like environment

If you need to define a new theorem-like environment, you must first define the name of the environment in the language to use:

- `\NameTheorem[⟨language name⟩]{⟨name of environment⟩}{⟨name string⟩}`

For *⟨language name⟩*, please refer to the section on language configuration. When *⟨language name⟩* is not specified, the name will be set for all supported languages. In addition, environments with or without asterisk share the same name, therefore, `\NameTheorem{envname*}{...}` has the same effect as `\NameTheorem{envname}{...}`.

And then define this environment in one of following five ways:

- `\CreateTheorem*{⟨name of environment⟩}`
 - Define an unnumbered environment *⟨name of environment⟩*
- `\CreateTheorem{⟨name of environment⟩}`
 - Define a numbered environment *⟨name of environment⟩*, numbered in order 1,2,3,...
- `\CreateTheorem{⟨name of environment⟩}[⟨numbered like⟩]`
 - Define a numbered environment *⟨name of environment⟩*, which shares the counter *⟨numbered like⟩*
- `\CreateTheorem{⟨name of environment⟩}<⟨numbered within⟩>`
 - Define a numbered environment *⟨name of environment⟩*, numbered within the counter *⟨numbered within⟩*
- `\CreateTheorem{⟨name of environment⟩}(⟨existed environment⟩)`
`\CreateTheorem*{⟨name of environment⟩}(⟨existed environment⟩)`
 - Identify *⟨name of environment⟩* with *⟨existed environment⟩* or *⟨existed environment⟩**.
 - This method is usually useful in the following two situations:
 1. To use a more concise name. For example, with `\CreateTheorem{thm}(theorem)`, one can then use the name `thm` to write theorem.
 2. To remove the numbering of some environments. For example, one can remove the numbering of the remark environment with `\CreateTheorem{remark}(remark*)`.

TIP

This macro utilizes the feature of `amsthm` internally, so the traditional `theoremstyle` is also applicable to it. One only needs declare the style before the relevant definitions.

Here is an example. The following code:

```
\NameTheorem[EN]{proofidea}{Idea}
\CreateTheorem*{proofidea*}
\CreateTheorem{proofidea}<subsection>
```

defines an unnumbered environment `proofidea*` and a numbered environment `proofidea` (numbered within subsection) respectively. They can be used in English context. The effect is as follows:

Idea | The `proofidea*` environment. ☐

Idea 4.3.1 | The `proofidea` environment. ☐

4.4 | Draft mark

You can use `\dnf` to mark the unfinished part. For example:

- `\dnf` or `\dnf<...>`. The effect is: `To be finished #1` or `To be finished #2: ...`.

The prompt text changes according to the current language. For example, it will be displayed as `Pas encore fini #3` in French mode.

Similarly, there is `\needgraph`:

- `\needgraph` or `\needgraph<...>`. The effect is:

`A graph is needed here #1`

or

`A graph is needed here #2: ...`

The prompt text changes according to the current language. For example, in French mode, it will be displayed as

`Il manque une image ici #3`

4.5 | Title, abstract and keywords

`einfart` has both the features of standard classes and that of the \mathcal{AMS} classes.

Therefore, the title part can either be written in the usual way, in accordance with the standard class article:

```
\title{<title>}
\author{<author>\thanks{<text>}}
\date{<date>}
\maketitle
\begin{abstract}
  <abstract>
\end{abstract}
\begin{keyword}
  <keywords>
\end{keyword}
```

or written in the way of \mathcal{AMS} classes:

```
\title{<title>}
\author{<author>}
\thanks{<text>}
\address{<address>}
\email{<email>}
\date{<date>}
\keywords{<keywords>}
\subclass{<subclass>}
\begin{abstract}
  <abstract>
\end{abstract}
\maketitle
```

1 The author information can contain multiple groups, written as:

```
\author{\langle author 1 \rangle}
\address{\langle address 1 \rangle}
\email{\langle email 1 \rangle}
\author{\langle author 2 \rangle}
\address{\langle address 2 \rangle}
\email{\langle email 2 \rangle}
...
```

2 Among them, the mutual order of `\address`, `\curraddr`, `\email` is not important.

4.6 | Miscellaneous

4.6.1 On the line numbers

3 Line numbers can be turned on and off at any time. `\linenumbers` is used to enable the
4 line numbers, and `\nolinenumbers` is used to disable them. For the sake of beauty, the
5 title, table of contents, index and some other elements are not numbered.

4.6.2 On the footnotes in the title

6 In `\section` or `\subsection`, if you wish to add footnotes, you can only:

- 7 • first write `\mbox{\protect\footnotemark}`,
- 8 • then add `\footnotetext{...}` afterwards.

9 This is a disadvantage brought about by the underline decoration of the title.

4.6.3 On the QED symbols

10 Since the font in the theorem-like environments is the same as that of the main text, in order
11 to indicate where the environments end, a hollow QED symbol \square is placed at the end of
12 the theorem-like environments. However, if your theorem ends with an equation or list
13 (itemize, enumerate, description, etc.), this symbol cannot be automatically placed in the
14 correct position. In this case, you need to manually add a `\qedhere` at the end of your
15 equation or the last entry of your list to make the QED symbol appear at the end of the line.

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Known issues

- 16 • The font settings are still not perfect.
- 17 • Since many features are based on the ProjLib toolkit, minimalist (and hence minimart,
18 einfart and minimbook, simplivre) inherits all its problems. For details, please refer to
19 the “Known Issues” section of the ProjLib documentation.
- 20 • The error handling mechanism is incomplete: there is no corresponding error prompt
21 when some problems occur.
- 22 • There are still many things that can be optimized in the code.