einfart, write your articles in a simple and clear way

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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 supports six languages: English, French, German, Chinese, Japanese and Russian. These languages can be switched seamlessly in a single document. Due to the usage of custom fonts, einfart requires X∃LATEX or LuaLATEX to compile.

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

Contents

> **Remind**
>
> Multi-language support, theorem-like environments, draft marks and some other features are provided by the ProjLib toolkit. Here we only briefly discuss how to use it with this document class. For more detailed information, you can refer to the documentation of ProjLib.

Corresponding to: einfart 2021/05/23

Initialization

1.1 | How to load it

One only needs to put

```
\documentclass{einfart}
```

as the first line to use the einfart class. Please note that you need to use either X∃LATEX or LuaLATEX engine to compile.

1.2 | Options

einfart offers the following options:

- `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.
- `a4paper` or `b5paper`
  - Optional paper size. The default paper size is 7in × 10in.
- `allowbf`
  - Allow boldface. When this option is enabled, the title, titles of all levels and 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.

> **Remind**
>
> - During the draft stage, it is recommended to use the `fast` option to speed up compilation. At the end, one should remove the "fast" option to get the final version. When in `fast` mode, there will be a watermark "DRAFT" to indicate that you are currently in the draft mode.
> - `allowbf` + `classical` is probably a good choice if you prefer traditional style.

On the fonts

By default, einfart uses Palatino Linotype as the English font, FounderType's YouSong and YouHei GBK as the Chinese fonts, 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 use them on your own. (For the Chinese fonts, visit FounderType's website for detail: `https://www.foundertype.com`).

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.

Some instructions

Many of the features described next are provided by the ProjLib toolkit. Only the basic usage is mentioned here. For more details, please refer to its user documentation.

3.1 | Language configuration

einfart has multi-language support, including simplified Chinese, traditional Chinese, English, French, German, Japanese, and Russian. 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
- 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).

3.2 | Theorems and how to reference them

Environments such as definitions and theorems have been pre-defined 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, problem, property, proposition, question, remark, theorem, and the corresponding unnumbered version with an asterisk * in the name. The display of these environments will change according to the current language.

When referencing a theorem-like environment, it is recommended to use clever reference \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 3.1 │ (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 3.1.
After using \UseLanguage{French}, a theorem will be displayed as:

THÉORÈME 3.2 │ (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 3.1 and THÉORÈME 3.2. If you want the name of the theorem to match the current context when referencing, you can add `regionalref` to the global options.

3.3 │ 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. For example, one can remove the numbering of the `remark` environment with `\CreateTheorem{remark}(remark*)`.

> **Remind**
>
> It uses 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 3.3.1 | The `proofidea` environment.

3.4 | 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

3.5 | On the title, abstract and keywords

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

2 Therefore, the title part can either be written in the usual way, in accordance with the stan-
3 dard class article:

```
\title{⟨title⟩}
\author{⟨author⟩\thanks{⟨text⟩}}
\date{⟨date⟩}
\maketitle
\begin{abstract}
    ⟨abstract⟩
\end{abstract}
\begin{keyword}
    ⟨keywords⟩
\end{keyword}
```

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

```
\title{⟨title⟩}
\author{⟨author⟩}
\thanks{⟨text⟩}
\address{⟨address⟩}
\email{⟨email⟩}
\date{⟨date⟩}
\keywords{⟨keywords⟩}
\subjclass{⟨subjclass⟩}
\begin{abstract}
    ⟨abstract⟩
\end{abstract}
\maketitle
```

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

```
\author{⟨author 1⟩}
\address{⟨address 1⟩}
\email{⟨email 1⟩}
\author{⟨author 2⟩}
\address{⟨address 2⟩}
\email{⟨email 2⟩}
...
```

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

3.6 | On the line numbers

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

3.7 | On the footnotes in the title

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

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

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

/ 4 /
Known issues

- The font settings are still not perfect.
- Since many features are based on the ProjLib toolkit, einfart inherits all its problems. For details, please refer to the "Known Issues" section of the ProjLib documentation.
- The error handling mechanism is incomplete: there is no corresponding error prompt when some problems occur.
- There are still many things that can be optimized in the code.

Document templates

5.1 | The standard way

1   If you want to write in the standard way, you can refer to the following example:

```latex
\documentclass{einfart}
\usepackage{PJLtoolkit} % Load ProjLib toolkit

\UseLanguage{French} % Use French from here

\begin{document}

\title{Le Titre}
\author{Auteur}
\date{\PJLdate{2022-04-01}}

\maketitle

\begin{abstract}
    Ceci est un résumé. \dnf<Plus de contenu est nécessaire.>
\end{abstract}
\begin{keyword}
    AAA, BBB, CCC, DDD, EEE
\end{keyword}

\section{Un théorème}

%% Theorem-like environments can be used directly
\begin{theorem}\label{thm:abc}
    Ceci est un théorème.
\end{theorem}

Référence du théorème: \cref{thm:abc}
    % It is recommended to use clever reference

\end{document}
```

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

```latex
\documentclass{article}
\usepackage[a4paper,margin=1in]{geometry}
\usepackage[hidelinks]{hyperref}
\usepackage[palatino]{PJLtoolkit} % Load ProjLib toolkit
```

5.2 | The $\mathcal{AMS}$ way

If you intend to switch to the journal template in the future and thus want to use the writing style as in the $\mathcal{AMS}$ classes, you can refer to the following example:

```
\documentclass{einfart}
\usepackage{PJLtoolkit} % Load ProjLib toolkit

\UseLanguage{French} % Use French from here

\begin{document}

\title{Le Titre}
\author{Auteur 1}
\address{Adresse 1}
\email{\href{Courriel 1}{Courriel 1}}
\author{Auteur 1}
\address{Adresse 1}
\email{\href{Courriel 2}{Courriel 2}}
\date{\PJLdate{2022-04-01}}
\subjclass{*****}
\keywords{...}

\begin{abstract}
    Ceci est un résumé. \dnf<Plus de contenu est nécessaire.>
\end{abstract}

\maketitle

\section{Première section}

%% Theorem-like environments can be used directly
\begin{theorem}\label{thm:abc}
    Ceci est un théorème.
\end{theorem}

Référence du théorème: \cref{thm:abc}
    % It is recommended to use clever reference

\end{document}
```

In this way, if you wish to switch to $\mathcal{AMS}$ class later, just replace the first two lines with:

```
\documentclass{amsart}
\usepackage[a4paper,margin=1in]{geometry}
\usepackage[hidelinks]{hyperref}
\usepackage[palatino]{PJLtoolkit} % Load ProjLib toolkit
```