Example and Documentation
of the `kaobook` class

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Example and Documentation
of the `kaobook` **class**
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an Awesome Publisher

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The kaobook class

The harmony of the world is made manifest in Form and Number, and the heart and soul and all the poetry of Natural Philosophy are embodied in the concept of mathematical beauty.

– D'Arcy Wentworth Thompson

Greek letters with pronounciation

character	name	character	name
α	alpha *AL-fuh*	ν	nu *NEW*
β	beta *BAY-tuh*	ξ, Ξ	xi *KSIGH*
γ, Γ	gamma *GAM-muh*	o	omicron *OM-uh-CRON*
δ, Δ	delta *DEL-tuh*	π, Π	pi *PIE*
ϵ	epsilon *EP-suh-lon*	ρ	rho *ROW*
ζ	zeta *ZAY-tuh*	σ, Σ	sigma *SIG-muh*
η	eta *AY-tuh*	τ	tau *TOW (as in cow)*
θ, Θ	theta *THAY-tuh*	υ, Υ	upsilon *OOP-suh-LON*
ι	iota *eye-OH-tuh*	ϕ, Φ	phi *FEE, or FI (as in hi)*
κ	kappa *KAP-uh*	χ	chi *KI (as in hi)*
λ, Λ	lambda *LAM-duh*	ψ, Ψ	psi *SIGH, or PSIGH*
μ	mu *MEW*	ω, Ω	omega *oh-MAY-guh*

Capitals shown are the ones that differ from Roman capitals.

Preface

It is my opinion that every LaTeX geek, at least once during his life, feels the need to create his or her own class: this is what happened to me and here is the result, which, however, should be seen as a work still in progress. Actually, this class is not completely original, but it is a blend of all the best ideas that I have found in a number of guides, tutorials, blogs and tex.stackexchange.com posts. In particular, the main ideas come from two sources:

► Ken Arroyo Ohori's Doctoral Thesis, which served, with the author's permission, as a backbone for the implementation of this class;

► The Tufte-Latex Class, which was a model for the style.

I started writing this class as an experiment, and as such it should be regarded. Since it has always been indended for my personal use, it may not be perfect but I find it quite satisfactory for the use I want to make of it. I share this work in the hope that someone might find here the inspiration for writing his or her own class.

Federico Marotta

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Introduction

1.1 The main ideas

Many modern printed textbooks have adopted a layout with prominent margins where small figures, tables, remarks and just about everything else can be displayed. Arguably, this layout helps to organise the discussion by separating the main text from the ancillary material, which at the same time is very close to the point in the text where it is referenced.

This text does not aim to be an apology of wide margins, for there are many better suited authors for this task; the purpose of all these words is just to fill the space so that the reader can see how a book written with the kaobook class looks like. Meanwhile, I shall also try to illustrate the features of the class.

The main ideas behind kaobook come from this blog post, and actually the name of the class is dedicated to the author of the post, Ken Arroyo Ohori, which has kindly allowed me to create a class based on his thesis. Therefore, if you want to know more reasons to prefer a 1.5-column layout for your books, you can read his blog post.

1.2 What this class does

The kaobook class focuses more about the document structure than about the style. Indeed, it is a well-known LaTeX printiple that structure and style should be separated as much as possible (see also Section *What this class does not* on the following page). This means that this class will only provide commands, environments and in general, the opportunity to do things, which the user may or may not exploit. Actually, some stylistic matters are embedded in the class, but the user is able to customise them with ease.

The main features are the following:

Page Headings They span the margins and, in twoside mode, display alternatively the chapter and the section name.

Matters The commands `\frontmatter`, `\mainmatter` and `\backmatter` have been redefined in order to have automatically wide margins in the main matter, and narrow margins in the front and back matters.

Margin text We provide commands `\sidenote` and `\marginnote` to put text in the margins[1].

1: Sidenotes (like this!) are numbered while marginnotes are not

Figure 1.1: The Mona Lisa.
`https://commons.wikimedia.`
`org/wiki/File:Mona_Lisa,_by_`
`Leonardo_da_Vinci,_from_C2RMF_`
`retouched.jpg`

Margin figs/tabs A couple of useful environments is `marginfigure` and `margintable`, which, not surprisingly, allow you to put figures and tables in the margins (cfr. Figure 1.1).

Margin toc Finally, since we have wide margins, why don't add a little table of contents in them? See `\margintoc` for that.

Hyperref `hyperref` is loaded and by default we try to add bookmarks in a sensible way; in particular, the bookmarks levels are automatically reset at `\appendix` and `\backmatter`.

1.3 *What this class does not*

As anticipated, the styling is left to the user. Indeed, every book may have sidenotes, margin figures and so on, but each book will have its own fonts, toc style and so on. For this reason, we only provide sensible defaults. The github repository is organised as follows.

kaobook.cls The class file, which contains the definitions of the commands and the environments and loads the required packages.

packages.sty Loads other packages to improve the experience of the user (for instance, `ams*` packages are loaded here as they are not required in every book).

commands.sty Complements to the packages, *e.g.* the specifications of the `theorem` environments.

style.sty Page layout, formatting of the titles...

Moreover, there is a folder containing this very book as an example.
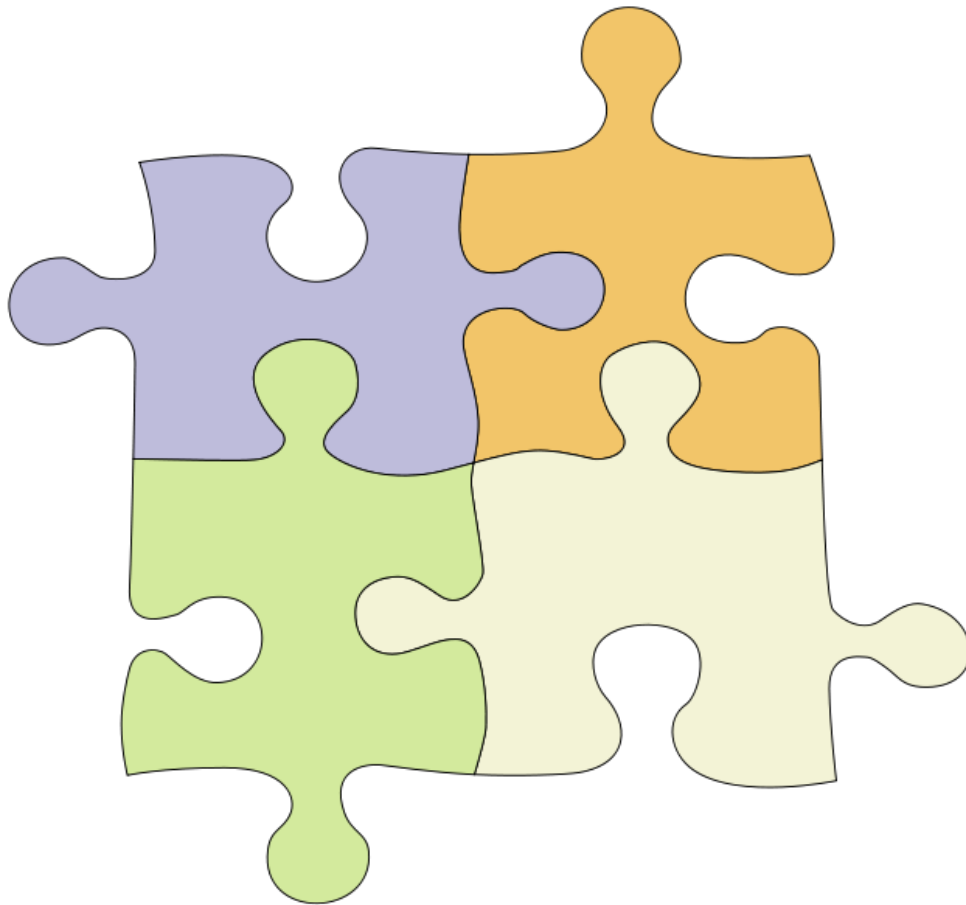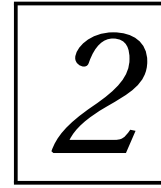
Part I

Class Options, Commands and Environments

Class Options 2

In this chapter I will describe the most common options used, both the ones inherited from scrbook and the kao-specific ones.

2.1 KOMA options

The class is based on the scrbook, therefore it understands all of the options you would normally pass to that class. By default, the font size is 9pt and the paragraphs are separated by space, not marked by indentation. The default value for parskip is half.

The toc has an entry for everything: listoffigures, listoftables, indices, and bibliographies. There are also entries for the tableofcontents itself (through the \setuptoc{toc}{totoc} command). If you want entries for the glossaries as well, you can set the toc option of the package glossaries.

2.2 kao options

In the future I plan to add more options to set the paragraph formatting (justified vs ragged) and the position of the margins (inner vs outer in twoside mode, left vs right in oneside mode)[3].

3: As of now, paragraphs are justified, formatted with singlespacing (from package setspace) and frenchspacing.

2.3 Other things worth knowing

By default, dispositions are numbered up to the section thanks to the command \setcounter{secnumdepth}{1}. We also altered slightly the entries of the parts in the table of contents so as to include "Part". The table of contents can be modified through the package etoc, which is loaded because it is needed for the margintocs.

We provide optional arguments to the \title and \author commands so that you can insert short, plain text versions of this fields, which can be used, typically in the half-title or somewhere else in the frontmatter, through the commands \plaintitle and \plainauthor, respectively.

The packages inputenc, hyphenat, microtype are already loaded, but you have to load babel or polyglossia and csquotes, if you wish.

We also load xcolor.

3

Sidenotes and Marginnotes

3.1 Sidenotes

usage

To insert a sidenote, just enter the command \sidenote{Text of the note}. You can specify a mark[O] with \sidenote[mark]{Text}, or you can specify an offset and a mark with \sidenote[offset][mark]{Text}, in which case the mark can be empty. If you want to know more, read the documentation of the snotez package.

O: This sidenote has a special mark

3.2 Marginnotes

This command is similar to the previous one: you can use it like \marginnote[offset]{Text}, where the offset argument can be left out.

3.3 Footnotes

Footnotes force the reader to constantly move from one area of the page to the other. Arguably marginnotes solve this issue, so you should not use footnotes. Nevertheless, for completeness, we provide the standard command \footnote, just in case you want to put a footnote once in a while[*].

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

3.4 Margintoc

Since we are talking about margins, we introduce here the \margintoc command, which accepts a parameter for the vertical offset, like so: \margintoc[offset]. It can be used in any point of the document, but we think it makes sense to use it at the beginning of chapters or parts. We like to put it in the chapter preamble, with this code:

```
\setchapterpreamble[u]{\margintoc}
\chapter{Sidenotes and Marginnotes}
```

---

[*] And this is how they look like.

Figure 4.1: By Bushra Feroz - Own work, CC BY-SA 4.0, https://commons.wikimedia.org/w/index.php?curid=68724647

4 Figures and Tables

4.1 Normal figures and tables

Normal figures and tables can be inserted just like in any standard LaTeX document. The captions will be positioned in the margins thanks to the `floatrow` package. The space between the figure and the text can be specified with the following commands:

```
\renewcommand\FBaskip{4pt}
\renewcommand\FBbskip{4pt}
```

Here is a picture of Mona Lisa (Figure 4.2), as an example.

Figure 4.2: It's Mona Lisa again. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

I don't have much to say, so I will just insert some blind text. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information

col1	col2	col3
Multiple row	cell2	cell3
	cell5	cell6
	cell8	cell9

Table 4.1: A useless table.

about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

col1	col2	col3
Multiple row	cell2	cell3
	cell5	cell6
	cell8	cell9

Table 4.2: Another useless table.

4.2 Margin figures and tables

Marginfigures can be inserted with the environment `marginfigure`. In this case, the whole picture is confined to the margin and the caption is below it. There is also the `margintable` environment, of which Table 4.2 is an example.

Marginfigures and tables can be positioned with an optional offset command, like so:

```
\begin{marginfigure}[offset]
\includegraphics{images/seaside}
\end{marginfigure}
```

Offset ca be either a measure or a multiple of `\baselineskip` in the format `[*5]`.

improve this part

4.3 Wide figures and tables

With the environments `figure*` and `table*` you can insert figures which span the whole page width.

Figure 4.3: A wide seaside.

5

References

5.1 Citations

To cite someone[1, 2] is very simple: just use the \sidecite command. It does not have an offset argument yet, but it will.

[1]: Visscher et al. (2008), 'Heritability in the genomics era–concepts and misconceptions.'
[2]: James et al. (2013), *An Introduction to Statistical Learning*

5.2 Glossaries and Indices

Here I will use a glossary entry: computer. Since we are here, let us reference an acronym: Frame per Second (FPS) and FPS.
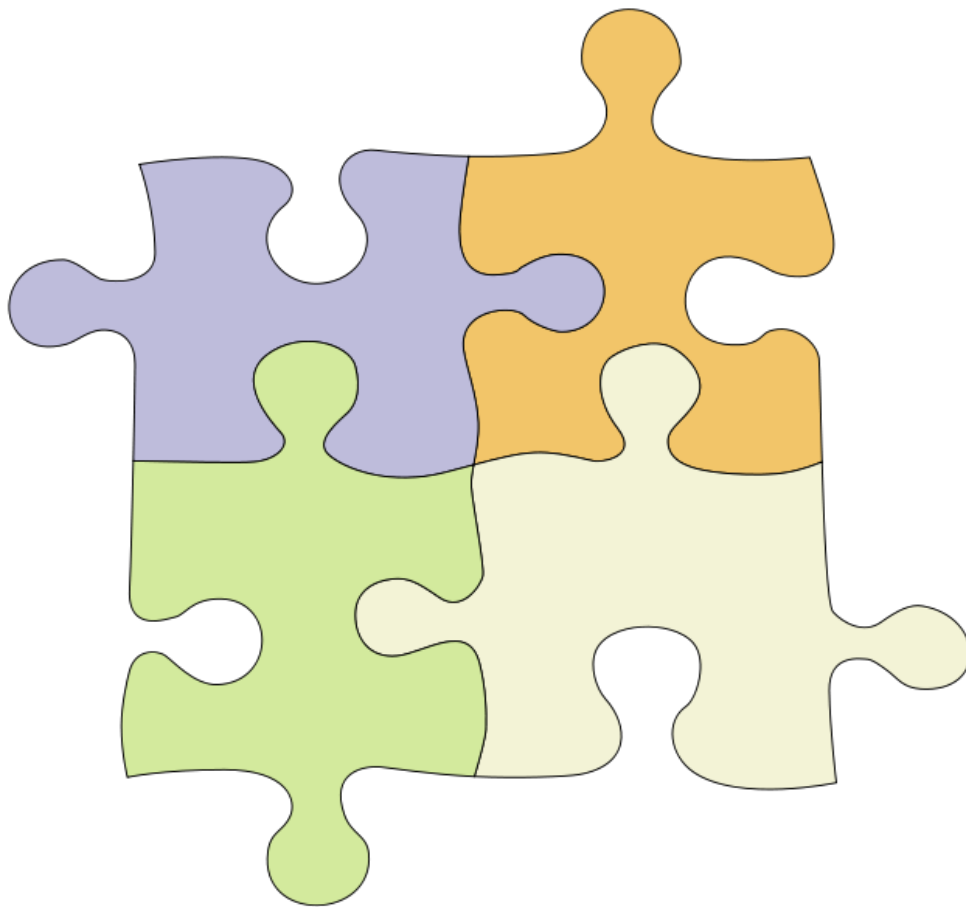
Part II

Style

6

TODO

A

Heading on Level 0 (chapter)

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

A.1 Heading on Level 1 (section)

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Heading on Level 2 (subsection)

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Heading on Level 3 (subsubsection)

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and

it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Heading on Level 4 (paragraph)   Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

A.2 Lists

Example for list (itemize)

- ► First item in a list
- ► Second item in a list
- ► Third item in a list
- ► Fourth item in a list
- ► Fifth item in a list

Example for list (4*itemize)

- ► First item in a list
  - • First item in a list
    - ∗ First item in a list
      - · First item in a list
      - · Second item in a list
    - ∗ Second item in a list
  - • Second item in a list
- ► Second item in a list

Example for list (enumerate)

1. First item in a list
2. Second item in a list
3. Third item in a list
4. Fourth item in a list
5. Fifth item in a list

*Example for list (4*enumerate)*

1. First item in a list
   a) First item in a list
      i. First item in a list
         A. First item in a list
         B. Second item in a list
      ii. Second item in a list
   b) Second item in a list
2. Second item in a list

Example for list (description)

First item in a list
Second item in a list
Third item in a list
Fourth item in a list
Fifth item in a list

*Example for list (4*description)*

First item in a list
    First item in a list
        First item in a list
            First item in a list
            Second item in a list
        Second item in a list
    Second item in a list
Second item in a list

Bibliography

[1] Peter M Visscher, William G Hill, and Naomi R Wray. 'Heritability in the genomics era–concepts and misconceptions.' In: *Nat. Rev. Genet.* 9.4 (2008), pp. 255–266. DOI: 10.1038/nrg2322 (page 13).

[2] Gareth James et al. *An Introduction to Statistical Learning.* 2013 (page 13).

Special Terms

C

computer is a programmable machine that receives input, stores and manipulates data, and provides output in a
useful format. 11

F

FPS Frame per Second. 11