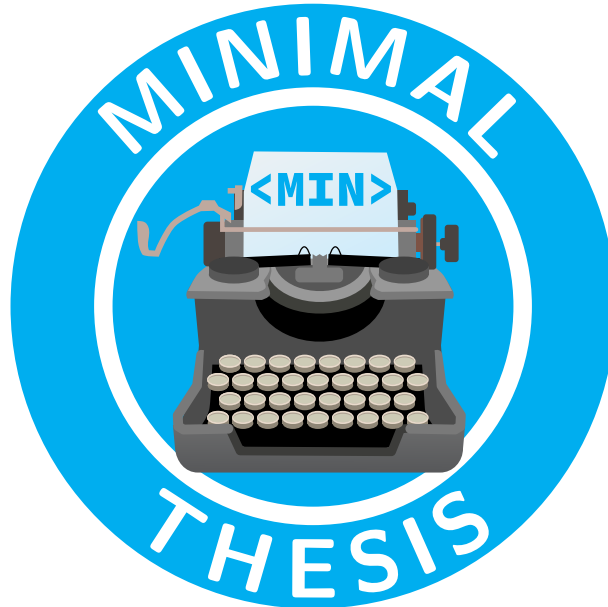


# minimalthesis

## Getting started with v0.0.2-alpha-1



Dissertation  
To obtain the Academic Degree  
“Philosophical Doctor (PhD)”

handed in by  
**MAX MUSTERMANN**  
born in Munich

University of Beteigeuze, Institute for Experimental Physics, Nanolab  
University of Jupiter, Institute for Chemistry, Synthesis Lab

November 13, 2023

**Examination Committee:**

|                      |                        |
|----------------------|------------------------|
| Chairman:            | Prof. Habakuk Tibatong |
| 1. Reviewer:         | Prof. Hans Bartolomä   |
| 2. Reviewer:         | Prof. Louis Murphy     |
| Additional Examiner: | Prof. Stefan Boltzmann |



# Contents

|          |                                                               |           |
|----------|---------------------------------------------------------------|-----------|
| <b>1</b> | <b>General Information</b>                                    | <b>5</b>  |
| 1.1      | Default Settings & User Choice . . . . .                      | 5         |
| 1.1.1    | Base Class & Basic Layout . . . . .                           | 5         |
| 1.1.2    | Language & Locale . . . . .                                   | 5         |
| 1.1.3    | Font, Visuals & Color . . . . .                               | 5         |
| 1.1.4    | Hyperlinks & pdf Metadata . . . . .                           | 5         |
| 1.2      | General Functionality Overview . . . . .                      | 6         |
| 1.2.1    | Quotation Marks . . . . .                                     | 6         |
| <b>2</b> | <b>Bibliography: Prerequisites, Usage &amp; Functionality</b> | <b>7</b>  |
| <b>3</b> | <b>Natural Science</b>                                        | <b>9</b>  |
| 3.1      | Mathematical Formulae . . . . .                               | 9         |
| 3.2      | Chemical Formulae . . . . .                                   | 10        |
| 3.3      | Units . . . . .                                               | 10        |
| <b>4</b> | <b>Changelog</b>                                              | <b>11</b> |
| 4.1      | v0.0.2-alpha-1 . . . . .                                      | 11        |
| 4.2      | v0.0.1-alpha . . . . .                                        | 11        |



# 1 General Information

## 1.1 Default Settings & User Choice

### 1.1.1 Base Class & Basic Layout

Per default, `minimalthesis` uses the `scrreprt` koma document class with a two sided layout (binding correction: 1 cm) as a basis. The page headers and footers are centered; the footer contains the current page number. The header either contains the current section name (if a section exists; see e.g. page 6) or the current chapter name (see e.g. page 8).

Captions include in small, bold font the type of float, its number and are separated by a colon from the description in normal, small font (see e.g. table 3.3).

### 1.1.2 Language & Locale

The default document language is set to english and currently cannot be changed by the user. The settings for typesetting units (see section 3.3) are directly derived from the default language.

### 1.1.3 Font, Visuals & Color

The typesetting design is more classic-minimalist: The user has the choice between the standard serif `lmodern`  $\text{\LaTeX}$  font or a sans serif variant as well as three visual styles (`plain`, `fancy-grayscale`, `fancy-colorful`), which differ in highlighting/usage of color.

### 1.1.4 Hyperlinks & pdf Metadata

Per default, hidden hyperlinks are activated. The pdf Metadata is created from the user information: The pdf author is equal to `mt::author::name`, the pdf title will be constructed from `mt::thesis::title` and/or `mt::thesis::subtitle` (which ever is available; if both exist, they will be combined). The pdf subject as well as the pdf keywords are set by default to “Academic Thesis” and cannot be changed by the user.

## 1.2 General Functionality Overview

### 1.2.1 Quotation Marks

To facilitate the usage of quotation marks, `minimalthesis` loads the `csquotes` package, which allows to automatically select the appropriate quotation marks based on language preset and sentence parameters by using `\enquote{text}`.

For example,

|                                                         |   |                            |
|---------------------------------------------------------|---|----------------------------|
| <code>\enquote{A quotation mark test.}</code>           | → | “A quotation mark test.”   |
| <code>\enquote{A \enquote{quotation mark} test.}</code> | → | “A ‘quotation mark’ test.” |

## 2 Bibliography: Prerequisites, Usage & Functionality

The bibliography is created by using biber. On a Linux based OS with TeXlive as a  $\text{\LaTeX}$  back-end, it can be installed via the

`texlive-bibtex-extra` (Debian based distro)

`texlive-bibtexextra` (Arch based disto)

packages.

To create the required bibliography files, one has to run in the terminal:

```
biber TEXFILENAME
```

To update the output pdf accordingly, the following sequence of commands is recommended:

```
pdflatex TEXFILENAME.tex &&
```

```
biber TEXFILENAME &&
```

```
pdflatex TEXFILENAME.tex &&
```

```
pdflatex TEXFILENAME.tex
```

For TeXstudio users, it is possible to select under

Options → Configure TeXstudio → Build → Default Bibliography Tool

biber as the default bibliography tool. After that, as soon as a change will occur in any of the bibliography files/data, TeXstudio will automatically rebuild the bibliography during the next compilation (so no additional user interaction required). If TeXstudio will not do that, a bibliography rebuild can be forced manually by pressing F8.

minimalthesis uses per default the “Angewandte Chemie” (chem-angew) bibliography standard. **Currently, this cannot be changed by the user, except by modifying the preamble file.**

In addition, minimalthesis provides the `@arxiv` [**arxivExample**] and `@thesis` [**thesisExample**] bibliography drivers, so that Arxiv preprints and theses can be cited properly without any manual adjustments by the user.

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. 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. 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. 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 Natural Science

### 3.1 Mathematical Formulae

To facilitate the typesetting of mathematical equations, especially with respect to physical use cases, `minimalthesis` not only loads the `amsmath`, `bm` and `amssymb` packages, but also the `derivative` and `physics` package to especially help with typesetting differentials and derivatives.

Typesetting derivatives via the `derivative` package is very flexible: An example for typesetting

**Table 3.1:** Examples on how to typeset derivatives with the `derivative` package

```
\pdv{f}{x}, \quad \odv{Q}{t}=\odv{s}{t}, \quad \pdv{f}{x,y}, \quad
\derivset{\odv}[switch-*=false] \odv{y}{x}, \quad \odv[order=n]{y}{x}, \quad
\derivset{\odv}[] \odv*{\odv{y}{x}}{x}, \quad
\derivset{\pdv}[sort-method={sign,symbol,abs}]
\pdv[order={c+kn,-b+2a}]{f}{x,y}
```

$$c \frac{\partial f}{\partial x}, \quad \frac{dQ}{dt} = \frac{ds}{dt}, \quad \frac{\partial^2 f}{\partial x \partial y}, \quad \frac{dy}{dx}, \quad \frac{d^n y}{dx^n}, \quad \frac{d}{dx} \frac{dy}{dx}, \quad \frac{\partial^{kn+2a+c-b} f}{\partial x^{c+kn} \partial y^{-b+2a}}$$

differentials with the `physics` and `derivative` packages:

**Table 3.2:** Examples on how to typeset differentials with the `physics` and `derivative` package

```
T = \int_{0}^{\infty} t \, dt,
\quad V = \int_a^b r \, dd[3]{r} = \int_a^b r \, odif{x,y,z}
```

$$T = \int_0^\infty t \, dt, \quad V = \int_a^b r \, d^3 r = \int_a^b r \, dx \, dy \, dz$$

## 3.2 Chemical Formulae

For typesetting chemical formulae, `minimalthesis` loads the `mhchem` package.

**Table 3.3:** Examples how to use `mhchem`. Excerpt from the manual.

|                                                                                 |                                                             |
|---------------------------------------------------------------------------------|-------------------------------------------------------------|
| <code>\ce{H2O}</code> , <code>\ce{CO2}</code> , <code>\ce{NH3}</code>           | → $\text{H}_2\text{O}$ , $\text{CO}_2$ , $\text{NH}_3$      |
| <code>\ce{H+}</code> , <code>\ce{CrO4^{2-}}</code> , <code>\ce{[AgCl2]-}</code> | → $\text{H}^+$ , $\text{CrO}_4^{2-}$ , $[\text{AgCl}_2]^-$  |
| <code>\ce{Y^{99+}}</code> , <code>\ce{^{227}_{90}Th+}</code>                    | → $\text{Y}^{99+}$ , $^{227}_{90}\text{Th}^+$               |
| <code>\ce{Fe^{II}Fe^{III}2O4}</code>                                            | → $\text{Fe}^{\text{II}}\text{Fe}^{\text{III}}_2\text{O}_4$ |
| <code>\ce{(NH4)2S}</code> , <code>\ce{[(X2)3]^{3+}}</code>                      | → $(\text{NH}_4)_2\text{S}$ , $[(\text{X}_2)_3]^{3+}$       |
| <code>\ce{CO2 + C -&gt; 2 CO}</code>                                            | → $\text{CO}_2 + \text{C} \longrightarrow 2 \text{CO}$      |

For more information, please refer to the official `mhchem` manual.

## 3.3 Units

To aid with typesetting units, `minimalthesis` loads the `siunitx` package. This package ensures that independent of the user input, all the number and unit conventions derived from the locale settings are satisfied. It also handles the different behavior in math and text environments.

**Table 3.4:** Examples how to use `siunitx`.

|                                                                                                         |                                                      |
|---------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| <code>\num{23,3}</code> , <code>\num{23.3}</code>                                                       | → 23.3, 23.3                                         |
| <code>\SI{23,3}{\volt}</code> , <code>\SI{23.3}{\volt}</code>                                           | → 23.3 V, 23.3 V                                     |
| <code>\si{\kilo\metre}</code> , <code>\si{\kilogram\meter\per\second\squared}</code>                    | → km, $\text{kg m s}^{-2}$                           |
| <code>\si[per-mode=fraction]{\kilogram\meter\per\second\squared}</code>                                 | → $\frac{\text{kg m}}{\text{s}^2}$                   |
| <code>\$s = \SI{9.81}{\meter\per\second\squared}\cdot</code><br><code>\int_{0}^{t} t \, \dd{t}\$</code> | → $s = 9.81 \text{ m s}^{-2} \cdot \int_0^t t \, dt$ |

## 4 Changelog

### 4.1 v0.0.2-alpha-1

Warning: Not backwards compatible to v0.0.1-alpha!

- Switched user settings from `komavar` to `pgfkeys`

### 4.2 v0.0.1-alpha

Release date: 2023-09-27,  
Initial implementation with `komavar`