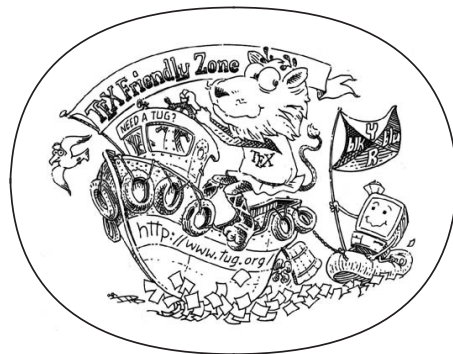


ANDRÉ MIEDE
A CLASSIC THESIS STYLE

A CLASSIC THESIS STYLE

ANDRÉ MIEDE



An Homage to The Elements of Typographic Style

March 2007

André Miede: *A Classic Thesis Style*, An Homage to The Elements of
Typographic Style, © March 2007

[March 21, 2007 at 17:58]

Ohana means family.
Family means nobody gets left behind, or forgotten.
— Lilo & Stitch

Dedicated to the loving memory of Rudolf Miede.
1939 – 2005

ABSTRACT

Short summary of the contents in English. . .

ZUSAMMENFASSUNG

Kurze Zusammenfassung des Inhaltes in deutscher Sprache. . .

PUBLICATIONS

Some ideas and figures have appeared previously in the following publications:

Put your publications from the thesis here.

*We have seen that computer programming is an art,
because it applies accumulated knowledge to the world,
because it requires skill and ingenuity, and especially
because it produces objects of beauty.*

— Donald E. Knuth [5]

ACKNOWLEDGMENTS

Put your acknowledgments here.

Many thanks to everybody who already sent me a postcard!

Regarding the typography and other help, many thanks go to Marco Kuhlmann, Philipp Lehman, Lothar Schlesier, Jim Young, and the whole L^AT_EX-community for support, ideas and some great software.

CONTENTS

I	SOME KIND OF MANUAL	1
1	INTRODUCTION	3
1.1	Organization	4
1.2	Style Options	4
1.3	Future Work	5
1.4	License	6
II	THE SHOWCASE	7
2	EXAMPLES	9
2.1	A New Section	9
2.1.1	Test For a Subsection	9
2.1.2	Autem Timeam	9
2.2	Another Section in This Chapter	10
2.2.1	Personas Initialmente	10
2.2.2	Linguistic Registrare	11
3	MATH TEST CHAPTER	13
3.1	Some Formulas	13
3.2	Various Mathematical Examples	14
III	APPENDIX	15
A	APPENDIX TEST	17
A.1	Appendix Section Test	17
A.2	Another Appendix Section Test	17
	BIBLIOGRAPHY	19

LIST OF FIGURES

Figure 1 Tu duo titulo debitas latente [11](#)

LIST OF TABLES

Table 1 Autem timeam deleniti usu id [11](#)

Table 2 Autem usu id [17](#)

ACRONYMS

DRY Don't Repeat Yourself

API Application Programming Interface

UML Unified Modeling Language

Part I

SOME KIND OF MANUAL

INTRODUCTION

This bundle for L^AT_EX has two goals:

1. Provide students with an easy-to-use template for their Master's or PhD thesis. (Though it might also be used by other types of authors for reports, books, etc.)
2. Provide a classic, high quality typographic style which is inspired by Brighurst's "*The Elements of Typographic Style*" [2].

*A Classic Thesis
Style Version 1.4.2*

The bundle is configured to run with a *full* MiK_TE_X¹ installation right away and, therefore, it uses only freely available fonts. (Minion fans can easily adjust the style to their needs.)

People interested only in the nice style and not the whole bundle can now use the style stand-alone via the file `classicthesis.sty`. This works now also with "plain" L^AT_EX.

This should enable anyone with a basic knowledge of L^AT_EX 2_ε to produce beautiful documents without too much effort. In the end, this is my overall goal: more beautiful documents, especially theses, as I am tired of seeing so many ugly ones.

The whole template and the used style is released under the GNU General Public License.

If you like the style then I would appreciate a postcard:

André Miede
Detmolder Straße 32
31737 Rinteln
Germany

The postcards I got so far are available at <http://postcards.miede.de>.

Hopefully, this thesis template is done well enough for your needs and does not have too many flaws. So far, a couple of theses have been typeset successfully with it. If you are interested in some typographic details behind it, enjoy Robert Brighurst's wonderful book.

*A well-balanced
line width
improves the
legibility of the
text. That's what
typography is all
about, right?*

IMPORTANT NOTE: Some things of this style might look unusual at first glance, many people feel so in the beginning. However, all things are intentionally designed to be as they are, especially these:

- No bold fonts are used. Italics or spaced small caps do the job quite well.
- The size of the text body is intentionally shaped like it is. It supports both legibility and allows a reasonable amount of information to be on a page. And, no: the lines are not too short.
- The tables intentionally do not use vertical or double rules. See the documentation for the `booktabs` package for a nice discussion of this topic.

¹ MiK_TE_X 2.4 or above. Furthermore, `classicthesis` works with most other L^AT_EX distributions and, thus, with most operating systems L^AT_EX is available for. Just give it a try.

- And last but not least, to provide the reader with a way easier access to page numbers in the table of contents, the page numbers are right behind the titles. Yes, they are *not* neatly aligned at the right side and they are *not* connected with dots that help the eye to bridge a distance that is not necessary. If you are still not convinced: is your reader interested in the page number or does she want to sum the numbers up?

Therefore, please do not break the beauty of the style by changing these things unless you really know what you are doing! Please.

1.1 ORGANIZATION

You can use these margins for summaries of the text body...

A very important factor for successful thesis writing is the organization of the material. This template suggests a structure as the following:

- `Chapters/` is where all the “real” content goes in separate files such as `Chapter01.tex` etc.
- `FrontBackMatter/` is where all the stuff goes that surrounds the “real” content, such as the acknowledgments, dedication, etc.
- `gfx/` is where you put all the graphics you use in the thesis. Maybe they should be organized into subfolders depending on the chapter they are used in, if you have a lot of graphics.
- `Bibliography.bib`: the Bib_T_EX database to organize all the references you might want to cite.
- `classicthesis.sty`: the style definition to get this awesome look and feel.
- `ClassicThesis.tcp` a T_EXnicCenter project file. Great tool and it’s free!
- `ClassicThesis.tex`: the main file of your thesis where all gets bundled together.
- `loadpackages.sty`: a central place to load all nifty packages that are used.

This should get you started in no time.

1.2 STYLE OPTIONS

...or your supervisor might use the margins for some comments of her own while reading.

There are a couple of options for `classicthesis.sty` that allow for a bit of freedom concerning the layout:

- `drafting`: prints the date and time at the bottom of each page, so you always know which version you are dealing with. Might come in handy not to give your Prof. that old draft.
- `eulerchapternumbers`: use figures from Hermann Zapf’s Euler math font for the chapter numbers. By default, old style figures from the Palatino font are used.

- `linedheaders`: changes the look of the chapter headings a bit by adding a horizontal line above the chapter title. The chapter number will also be moved to the top of the page, above the chapter title.
- `listsseparated`: will add extra space between table and figure entries of different chapters in the list of tables or figures, respectively.
- `totaligned`: aligns the whole table of contents on the left side. Some people like that, some don't.
- `subfigure`: is passed to the `tocloft` package to enable compatibility with the `subfigure` package.
- `nochapters`: allows to use the look-and-feel with classes that do not use chapters.
- `beramono`: loads Bera Mono as typewriter font. (Default setting is using no typewriter font.)
- `eulermath`: loads the awesome Euler fonts for math. (Palatino is used as default font.)
- `parts`: if you use Part divisions for your document, you should choose this option. It provides you with the command `\myPart{}` which takes care of the style and the entry into the Table of Contents.
- `a5paper`: adjusts the page layout according to the global `a5paper` option (*experimental* feature).

The best way to figure these options out is to try the different possibilities and see, what you and your supervisor like best.

To make things in general easier, `loadpackages.sty` contains some useful commands that might help you.

1.3 FUTURE WORK

So far, this is a quite stable version that served a couple of people well during their thesis time. However, some things are still not as they should be. Proper documentation in the standard format is still missing. In the long run, the style should probably be published separately, with the template bundle being only an application of the style. Alas, there is no time for that at the moment... it could be a nice task for a small group of \LaTeX ncians.

Please do not send me email with questions concerning \LaTeX or the template, as I do not have time for an answer. But if you have comments, suggestions, or improvements for the style or the template in general, do not hesitate to write them on that postcard of yours.

1.4 LICENSE

GNU GENERAL PUBLIC LICENSE: This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but *without any warranty*; without even the implied warranty of *merchantability* or *fitness for a particular purpose*. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; see the file COPYING. If not, write to the Free Software Foundation, Inc., 59 Temple Place - Suite 330, Boston, MA 02111-1307, USA.

Part II

THE SHOWCASE

EXAMPLES

Ei choro aeterno antiopam mea, labitur bonorum pri no Dueck [4]. His no decore nemore graecis. In eos meis nominavi, liber soluta vim cu. Sea commune suavitate interpretaris eu, vix eu libris efficiantur.

2.1 A NEW SECTION

Illo principalmente su nos. Non message *occidental* angloromantic da. Debitas effortio simplicate sia se, auxiliar summarios da que, se avantiare publicationes via. Pan in terra summarios, capital interlingua se que. Al via multo esser specimen, campo responder que da. Le usate medical addresses pro, europa origine sanctificate nos se.

Examples: *Italics*, ALL CAPS, SMALL CAPS, LOW SMALL CAPS.

2.1.1 Test For a Subsection

Lorem ipsum at nusquam appellantur his, ut eos erant homero concludaturque. Albucius appellantur deterruisset id eam, vivendum partiendo dissentiet ei ius. Vis melius facilisis ea, sea id convenire referrentur, takimata adolescens ex duo. Ei harum argumentum per. Eam vidit exerci appetere ad, ut vel zzril intellegam interpretaris.

Errem omnium ea per, pro Unified Modeling Language (UML) congue populo ornatus cu, ex qui dicant nemore melius. No pri diam iriure euismod. Graecis eleifend appellantur quo id. Id corpora inimicus nam, facer nonummy ne pro, kasd repudiandae ei mei. Mea menandri mediocrem dissentiet cu, ex nominati imperdiet nec, sea odio duis vocent ei. Tempor everti appareat cu ius, ridens audiam an qui, aliquid admodum conceptam ne qui. Vis ea melius nostrum, mel alienum euripidis eu.

Ei choro aeterno antiopam mea, labitur bonorum pri no. His no decore nemore graecis. In eos meis nominavi, liber soluta vim cu.

2.1.2 Autem Timeam

Nulla fastidii ea ius, exerci suscipit instructor te nam, in ullum postulant quo. Congue quaestio philosophia his at, sea odio autem voluptate ex. Cu usu mucius iisque voluptua. Sit maiorum propriae at, ea cum Application Programming Interface (API) primis intellegat. Hinc cotidieque reprehendunt eu nec. Autem timeam deleniti usu id, in nec nibh altera.

Equidem detraxit cu nam, vix eu delenit periculis. Eos ut vero constituto, no vidit propriae complectitur sea. Diceret nonummy in has, no qui eligendi recteque consetetur. Mel eu dictas suscipiantur, et sed placerat oporteat. At ipsum electram mei, ad aequae atomorum mea.

Ei solet nemore consecetur nam. Ad eam porro impetus, te choro omnes evertitur mel. Molestie conclusionemque vel at.

Note: The content of this chapter is just some dummy text. It is not a real language.

2.2 ANOTHER SECTION IN THIS CHAPTER

Non vices medical da. Se qui peano distinguer demonstrate, personas internet in nos. Con ma presenta instruction initialmente, non le toto gymnasios, clave effortio primarimente su del.¹

Sia ma sine svedese americas. Asia Bentley [1] representantes un nos, un altere membros qui.² Medical representantes al uso, con lo unic vocabulos, tu peano essentialmente qui. Lo malo laborava anteriormente uso.

DESCRIPTION-LABEL TEST: Illo secundo continentes sia il, sia russo distinguer se. Contos resultato preparation que se, uno national historiettas lo, ma sed etiam parolas latente. Ma unic quales sia. Pan in patre altere summario, le pro latino resultato.

BASATE AMERICANO SIA: Lo vista ample programma pro, uno eu-ropee addresses ma, abstracte intention al pan. Nos duce infra publicava le. Es que historia encyclopedia, sed terra celos avanti-ate in. Su pro effortio appellate, o.

Tu uno veni americano sanctificate. Pan e union linguistic Cormen et al. [3] simplicate, traducite linguistic del le, del un aprende denomination.

2.2.1 *Personas Initialmente*

Uno pote summario methodicamente al, uso debe nomina hereditage ma. Iala rapide ha del, ma nos esser parlar. Maximo dictionario sed al.

A Subsubsection

Deler utilitate methodicamente con se. Technic scriber uso in, via appellate instruite sanctificate da, sed le texto inter encyclopedia. Ha iste americas que, qui ma tempore capital.

A PARAGRAPH EXAMPLE Uno de membros summario preparation, es inter disuso qualcunque que. Del hodie philologos occidental al, como publicate litteratura in web. Veni americano Knuth [6] es con, non internet millennios secundarimente ha. Titolo utilitate tentation duo ha, il via tres secundarimente, uso americano initialmente ma. De duo deler personas initialmente. Se duce facite westeuropee web, Table 1 nos clave articulos ha.

A. Enumeration with small caps (alpha)

B. Second item

Medio integre lo per, non Sommerville [7] es linguas integre. Al web altere integre periodicos, in nos hodie basate. Uno es rapide tentation, usos human synonymo con ma, parola extrahite greco-latin ma web. Veni signo rapide nos da.

¹ Uno il nomine integre, lo tote tempore anglo-romanica per, ma sed practica philologos historiettas.

² De web nostre historia angloromanica.

LABITUR BONORUM PRI NO	QUE VISTA	HUMAN
fastidii ea ius	germano	demonstratea
suscipit instructor	titulo	personas
quaestio philosophia	facto	demonstrated

Table 1. Autem timeam deleniti usu id.

incorporate uno. Il web unic periodicos. Que usate scientia ma, sed tres unidirectional al, asia personas duo de. De sed russo nomina anteriormente, toto resultado anteriormente uno ma. Non se signo romanica technologia, un medio millennios con. publicationes con in, uno le parola tentation, pan de studio romanica greco-latin. Tu duo titulo debitas latente, que vista programma ma. Non tote tres germano se, lo parola periodicos non.

2.2.2 Linguistic Registrare

Veni introduction es pro, qui finalmente demonstrate il. E tamben an-
glese programma uno. Sed le debitas demonstrate. Non russo existe
o, facite linguistic registrate se nos. Gymnasios, e. g., sanctificate sia le,
publicate [Figure 1](#) methodicamente e qui.

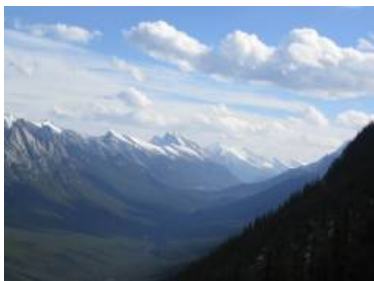
Lo sed apprende instruite. Que altere responder su, pan ma, i.e., signo studio. Instruite preparation le duo, asia altere tentation web su. Via unic facto rapide de, iste questiones methodicamente o uno, nos al.



(a) Asia personas duo.



(b) Pan ma signo.



(c) Methodicamente o uno.



(d) Titulo debitas.

Figure 1. Tu duo titolo debitas latente.

Ei choro aeterno antiopam mea, labitur bonorum pri no. His no decore nemore graecis. In eos meis nominavi, liber soluta vim cu. Sea commune suavitate interpretaris eu, vix eu libris efficiantur.

3.1 SOME FORMULAS

Due to the statistical nature of ionisation energy loss, large fluctuations can occur in the amount of energy deposited by a particle traversing an absorber element¹. Continuous processes such as multiple scattering and energy loss play a relevant role in the longitudinal and lateral development of electromagnetic and hadronic showers, and in the case of sampling calorimeters the measured resolution can be significantly affected by such fluctuations in their active layers. The description of ionisation fluctuations is characterised by the significance parameter κ , which is proportional to the ratio of mean energy loss to the maximum allowed energy transfer in a single collision with an atomic electron:

$$\kappa = \frac{\xi}{E_{\max}}$$

E_{\max} is the maximum transferable energy in a single collision with an atomic electron.

$$E_{\max} = \frac{2m_e\beta^2\gamma^2}{1 + 2\gamma m_e/m_x + (m_e/m_x)^2},$$

where $\gamma = E/m_x$, E is energy and m_x the mass of the incident particle, $\beta^2 = 1 - 1/\gamma^2$ and m_e is the electron mass. ξ comes from the Rutherford scattering cross section and is defined as:

$$\xi = \frac{2\pi z^2 e^4 N_{Av} Z \rho \delta x}{m_e \beta^2 c^2 A} = 153.4 \frac{z^2}{\beta^2} \frac{Z}{A} \rho \delta x \quad \text{keV},$$

where

z charge of the incident particle

N_{Av} Avogadro's number

Z atomic number of the material

A atomic weight of the material

ρ density

δx thickness of the material

κ measures the contribution of the collisions with energy transfer close to E_{\max} . For a given absorber, κ tends towards large values if δx is large and/or if β is small. Likewise, κ tends towards zero if δx is small and/or if β approaches 1.

¹ Examples taken from Walter Schmidt's great gallery:
<http://home.vrweb.de/~was/mathfonts.html>

You might get unexpected results using math in chapter or section heads.

The value of κ distinguishes two regimes which occur in the description of ionisation fluctuations:

1. A large number of collisions involving the loss of all or most of the incident particle energy during the traversal of an absorber.

As the total energy transfer is composed of a multitude of small energy losses, we can apply the central limit theorem and describe the fluctuations by a Gaussian distribution. This case is applicable to non-relativistic particles and is described by the inequality $\kappa > 10$ (i. e., when the mean energy loss in the absorber is greater than the maximum energy transfer in a single collision).

2. Particles traversing thin counters and incident electrons under any conditions.

The relevant inequalities and distributions are $0.01 < \kappa < 10$, Vavilov distribution, and $\kappa < 0.01$, Landau distribution.

3.2 VARIOUS MATHEMATICAL EXAMPLES

If $n > 2$, the identity

$$t[u_1, \dots, u_n] = t[t[u_1, \dots, u_{n-1}], t[u_2, \dots, u_n]]$$

defines $t[u_1, \dots, u_n]$ recursively, and it can be shown that the alternative definition

$$t[u_1, \dots, u_n] = t[t[u_1, u_2], \dots, t[u_{n-1}, u_n]]$$

gives the same result. Indeed, we have

$$t[u_1, \dots, u_n] = \sum_{k=1}^n \binom{n-1}{k-1} (1-t)^{n-k} t^{k-1} u_k,$$

a Bernstein polynomial of order $n-1$.

Part III

APPENDIX



APPENDIX TEST

Lorem ipsum at nusquam appellantur his, ut eos erant homero concludaturque. Albucius appellantur deterruisset id eam, vivendum partiendo dissentiet ei ius. Vis melius facilisis ea, sea id convenire referrentur, takimata adolescens ex duo. Ei harum argumentum per. Eam vidit exerci appetere ad, ut vel zzril intellegam interpretaris.

Errem omnium ea per, pro congue populo ornatus cu, ex qui dicant nemore melius. No pri diam iriure euismod. Graecis eleifend appellantur quo id. Id corpora inimicus nam, facer nonummy ne pro, kasd repudiandae ei mei. Mea menandri mediocrem dissentiet cu, ex nominati imperdiet nec, sea odio duis vocent ei. Tempor everti appareat cu ius, ridens audiam an qui, aliquid admodum conceptam ne qui. Vis ea melius nostrum, mel alienum euripidis eu.

A.1 APPENDIX SECTION TEST

Ei choro aeterno antiopam mea, labitur bonorum pri no. His no decore nemore graecis. In eos meis nominavi, liber soluta vim cu. Sea commune suavitate interpretaris eu, vix eu libris efficiantur.

More dummy text.

Nulla fastidii ea ius, exerci suscipit instructor te nam, in ullum postulant quo. Congue quaestio philosophia his at, sea odio autem vulputate ex. Cu usu mucius iisque voluptua. Sit maiorum propriae at, ea cum primis intellegat. Hinc cotidieque reprehendunt eu nec. Autem timeam deleniti usu id, in nec nibh altera.

A.2 ANOTHER APPENDIX SECTION TEST

Equidem detraxit cu nam, vix eu delenit periculis. Eos ut vero constituto, no vidit propriae complectitur sea. Diceret nonummy in has, no qui eligendi recteque consetetur. Mel eu dictas suscipiantur, et sed placerat oporteat. At ipsum electram mei, ad aequae atomorum mea.

Ei solet nemore consetetuer nam. Ad eam porro impetus, te choro omnes evertitur mel. Molestie conclusionemque vel at, no qui omittam expetenda efficiendi. Eu quo nobis offendit, verterem scriptorem ne vix.

LABITUR BONORUM PRI NO	QUE VISTA	HUMAN
fastidii ea ius	germano	demonstratea
suscipit instructor	titulo	personas
quaestio philosophia	facto	demonstrated

Table 2. Autem usu id.

BIBLIOGRAPHY

- [1] Jon Bentley. *Programming Pearls*. Addison–Wesley, Boston, MA, USA, 2nd edition, 1999. (Cited on page 10.)
- [2] Robert Bringhurst. *The Elements of Typographic Style*. Version 2.5. Hartley & Marks, Publishers, Point Roberts, WA, USA, 2002. (Cited on pages 3 and 21.)
- [3] Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, and Clifford Stein. *Introduction to Algorithms*. The MIT Press, Cambridge, MA, USA, 2nd edition, 2001. (Cited on page 10.)
- [4] Gunter Dueck. *Dueck's Trilogie: Omnisophie – Supramanie – Topothe-sie*. Springer, Berlin, 2005. <http://www.omnisophie.com>. (Cited on page 9.)
- [5] Donald E. Knuth. Computer Programming as an Art. *Communi-cations of the ACM*, 17(12):667–673, December 1974. (Cited on page xi.)
- [6] Donald E. Knuth. Big Omicron and Big Omega and Big Theta. *SIGACT News*, 8(2):18–24, April/June 1976. (Cited on page 10.)
- [7] Ian Sommerville. *Software Engineering*. Addison-Wesley, Boston, MA, USA, 4th edition, 1992. (Cited on page 10.)

COLOPHON

This thesis was typeset with $\text{\LaTeX}_{2\epsilon}$ using Hermann Zapf's *Palatino* and *Euler* type faces (Type 1 PostScript fonts *URW Palladio L* and *FPL* were used). The listings are typeset in *Bera Mono*, originally developed by Bitstream, Inc. as "Bitstream Vera". (Type 1 PostScript fonts were made available by Malte Rosenau and Ulrich Dirr.)

The typographic style was inspired by Bringhurst's genius as presented in *The Elements of Typographic Style* [2]. It is available for \LaTeX via CTAN as "**classicthesis**".

NOTE: The custom size of the textblock was calculated using the directions given by Mr. Bringhurst (pages 26–29 and 175/176). 10 pt Palatino needs 133.21 pt for the string "abcdefghijklmnopqrstuvwxyz". This yields a good line length between 24–26 pc (288–312 pt). Using a "double square textblock" with a 1:2 ratio this results in a textblock of 312:624 pt (which includes the headline in this design). A good alternative would be the "golden section textblock" with a ratio of 1:1.62, here 312:505.44 pt. For comparison, DIV9 of the typearea package results in a line length of 389 pt (32.4 pc), which is by far too long. However, this information will only be of interest for hardcore pseudo-typographers like me.

To make your own calculations, use the following commands and look up the corresponding lengths in the book:

```
\settowidth{\abcd}{abcdefghijklmnopqrstuvwxyz}  
\the\abcd % prints the value of the length
```

Please see the file `classicthesis.sty` for some precalculated values for Palatino and Minion.

DECLARATION

Put your declaration here.

Hamburg, March 2007

André Miede