72. Writing a Dissertation: Dream or Nightmare?

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2012-0.6, 12-6-16
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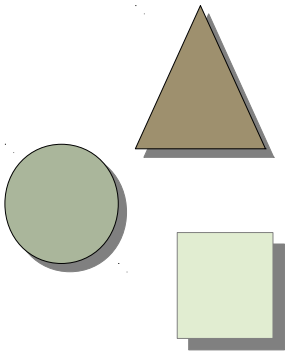


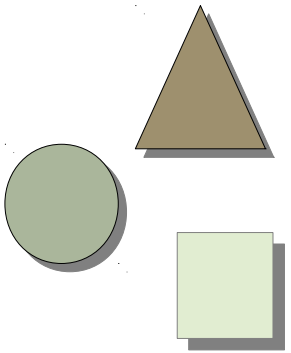
1) The PhD Process
2) What to Write
3) The Writing Process

References & Helpful Resources

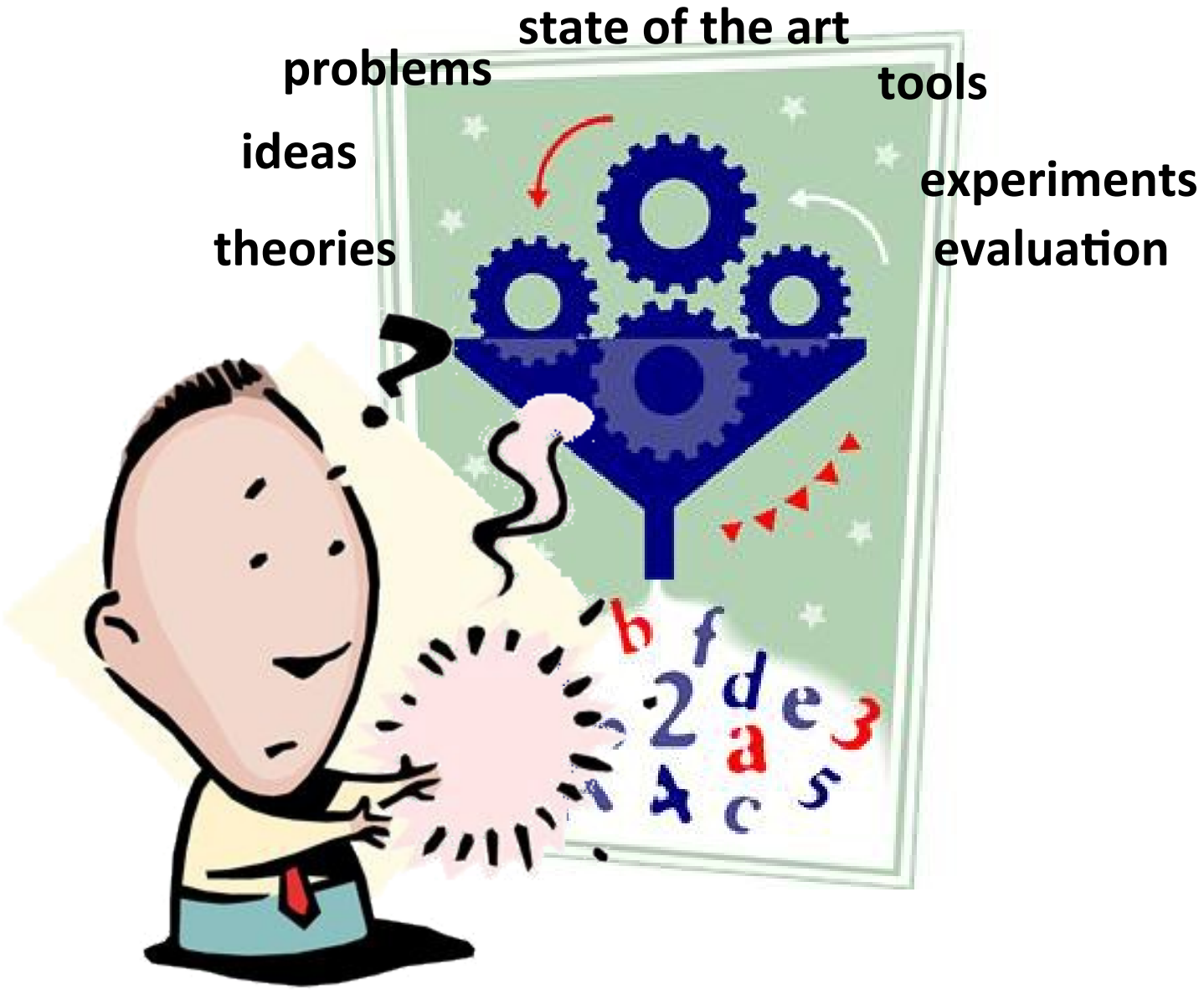
- Uwe Aßmann. PhD Breviary. Internal Memo for the ST Group.
- Peg Boyle Single. Demystifying Dissertation Writing
  Stylus Publishing, Sterling Virginia, 2009
- [Carlson-Wilmot] Curtis R. Carlson, William W. Wilmot. Innovation. The Five Disciplines for Creating what Customers Want SRI International. Crown Business, US, 2006
- Stephen R. Covey. The Seven Habits of Highly Effective People
- Books on Personality, Interaction Style, Teamwork
  - Seibert/Gay: 1x1 der Persönlichkeit
- Books on Personal Time Management
  - Mackenzie: Die Zeitfalle

- doktorandenforum.de
- http://abiteboul.com/PRESENTATION/HowToChooseAThesisTopoc-EDBT02.pdf

72.1. The PhD Process



Writing a Dissertation is ...



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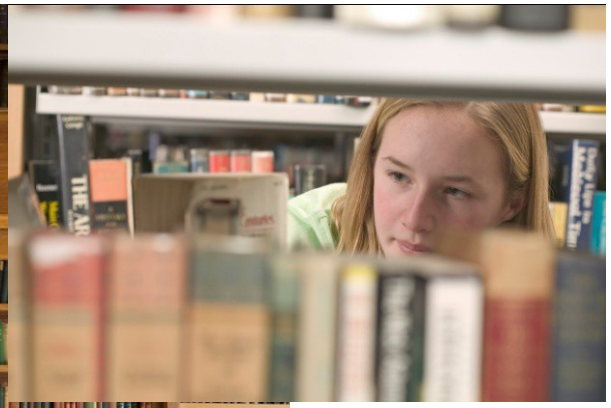
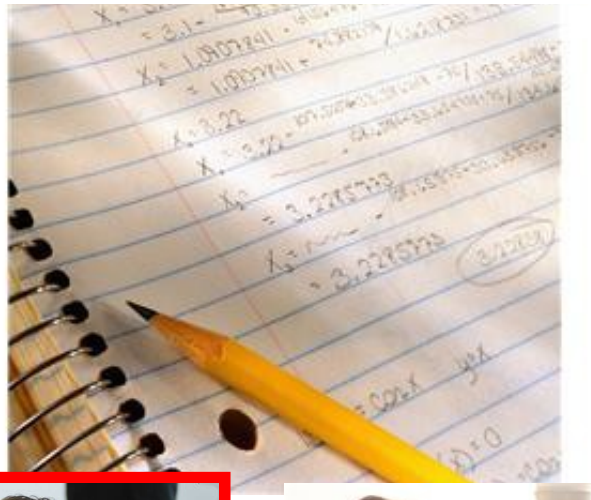
Writing a Dissertation is ...





The General Outline of a PhD in Software Engineering

Phase			Year
1	Novice PhD Student	Training in the background of the group Identify research problem; write Focus Statement Conducting PhD courses, paper courses, soft skill courses, ASICS course(!)	1
2	Junior PhD Students	Write papers as lead author Write overview papers of research field	2
3	Senior PhD student	Write papers about the research problem and results as lead author; first version of the evaluation of the research solution	3
4	Pregnant Duck	Writing up a PhD report	4
5	Lame Duck	being pregnant over time... no employment any more	5

- After year 4, employment and funding is no longer guaranteed.
- In many cases, funding agencies only pay 3 years (e.g., DFG, or ESF in Saxony)

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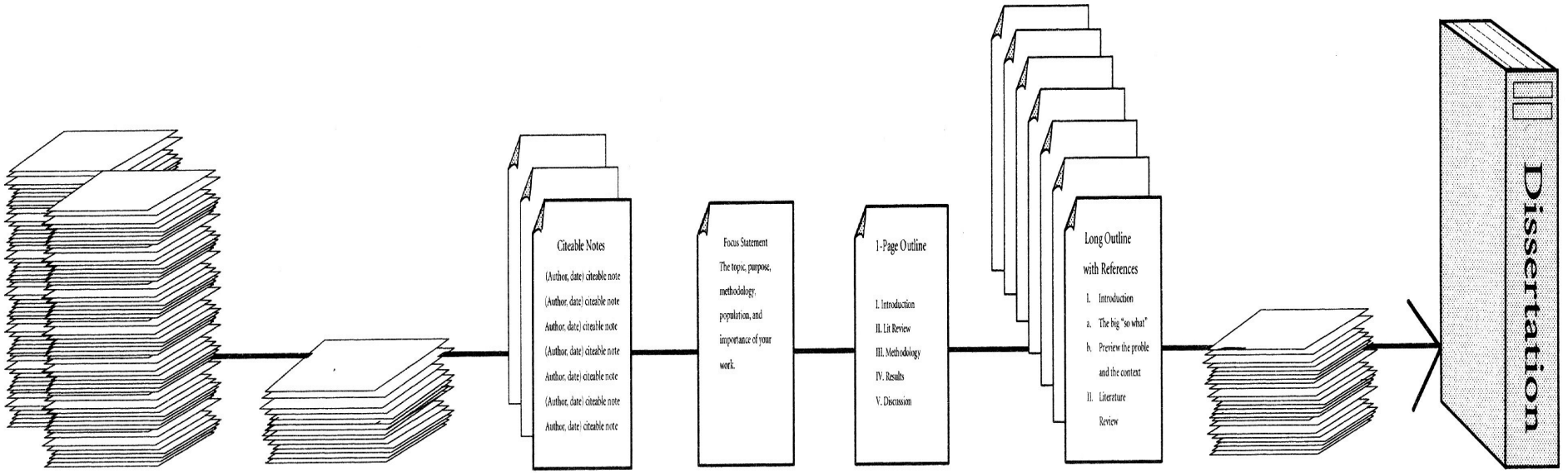
Elements of a structured writing process



Interactive Reading

Interactive Note Taking

Citeable Notes

Focus Statement

One-Page Outline

Long Outline With References

Regular Writing Routine

Dissertation!

from Peg Boyle Single: Demystifying Dissertation Writing (2009)

Interactive Reading and Note Taking /1

- Use reading methods as RIK or SQ3R
- Reading papers / books
  - reserve reading time
  - at least: 2-pass-reading
    - get structure and annotate
    - re-read and take notes
    - summarize ideas with mindmaps
  - identify most relevant references
- Tools: Jabref, Mendeley, Zotero, Bibsonomy
- bibserver in Karlsruhe
- Google scholar

- collect notes, not articles!
- Write a “literature overview” article with research roadmap!

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Interactive Reading and Note Taking /2

- the paper reading / sharing group
  - (bi)weekly meeting to discuss papers
  - present each paper in 5 min
  - what are the main ideas?
  - what do I like?
  - research method?
  - structure / style / patterns of writing?

Produce Citable Notes

- create structured and annotated bibliography
- keep notes and quotations with the bibliographic references

- use appropriate tool support for creating and maintaining bibliographies
  - EndNote
  - store PDF sources
  - store web links
  - BibTeX
  - (Word)

Andel, Jaroslav. Avant-Garde Page Design 1900-1950. Minneapolis: Delano Greenidge Editions, 2002.

Avant-Garde Page Design is an interesting book with beautiful images of various avant-garde artists and designers. I found it very exciting just to thumb through the book before even looking at it in depth. I drew a lot of inspiration from the various title and cover pages such as Herbert Bayer's cover of Staatliches Bauhaus in Weimar 1919-1923.

Blackwell, Lewis. Twentieth-Century Type. New York, New York: national Publications, Inc., 1992.

Twentieth-Century Type was used for project one research. I really learned a lot about my era from this book, and I enjoyed all the designs that it showed. My favorite image was a spread of Neville Brody's "Bounce" ad for Nike.

Cox, Paul. Abstract Alphabet. San Francisco, CA: Chronical Books, 1997.

Abstract Alphabet is an adorable children's book where Paul Cox creates his own symbols for each letter of the alphabet. Like many alphabet books, the Abstract Alphabet is a book that utilizes the names of animals for each letter of the alphabet. Using the key, the reader can decipher the name of each animal on the page. This book made me think about how to use and break up white space on a spread.

Duncan, Thomas. "New Art City." Tokion Fall 2008: 72-75.

I studied the Tokion magazine before I started working on my book layout. It's like night and day when I read Tokion compared to magazines like Cosmo or People. The spreads are very minimal and clean. This is unlike magazines like Cosmo and People where I feel like I'm being yelled at by products, cutouts of images, and loud type. In Tokion the use of a grid is obvious and the same grid is used throughout the magazine, which makes it very cohesive.

Lupton, Ellen, and J. Miller. Design Writing Research. New York, NY: Princeton Architectural P, 1996.

Design Writing Research is an engaging book to read. The first half of the book explains the history of various things such as written out numbers and dingbats, the book literally uses the various devices in the way described in the text. Throughout the book, Jacques Derrida and his theory on deconstruction are mentioned, which ties the contents of the book together. The second half of the book shows some artwork, photography, and various commercial designs, with a majority of them from the 1980s. I found this book to be very informative and an enjoyable read.

Rabinowitz, Tova. Exploring Typography. Clifton Park, New York: Thompson/Delmar Learning, 2006.

Exploring Typography served as the foundation for the project one. Although the book did not go into depth about the history of typography it provided the basics and acted as a quick guide

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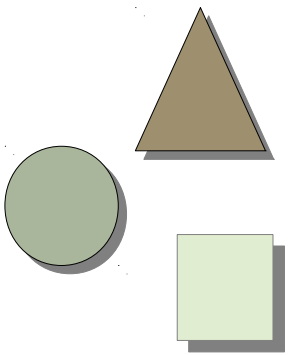
72.2. Things to Write



72.2.1. Focusing on Focus Statement

- Early on: write a short **focus statement** (4 sentences) to keep you focused
- state the very essence of the dissertation
  - research question / problem statement
  - intended outcome / results
  - constraints / context
  - theory / research methodology
  - data sources

- written in first person active voice
  → C3 = clear, concise, compelling

- write several versions / revisions
- take time – it is extremely important!

- http://abiteboul.com/PRESENTATION/HowToChooseAThesisTopoc-EDBT02.pdf

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Example "focus statement" [Noack 2007]

Surprising results can be obtained by applying some established clustering and layout algorithms to a trade network of seven European and three American countries: Not Europe is separated from America, but Sweden is separated from the rest of the world. Indeed, this separation is optimal – but with respect to the wrong criteria.

This work is about criteria for identifying closely interlocked countries in international trade, groups of friends in social networks, subject areas in hypertexts,
and cohesive modules in software systems; about criteria for identifying what researchers from Herbert Simon [Sim62] to Mark Newman [New03] have observed to be ubiquitous in real-world systems: weakly interacting groups of strongly interacting elements.
Part I introduces, validates, and unifies quality measures for groupings,
i.e. measures that quantify to what degree a given grouping clusters strongly interacting system elements and separates weakly interacting system elements.
Part II applies these measures to evaluate design quality and identify design problems in software systems.

Some Guiding Questions for the Focus Statement

- What is your dissertation about?
- Why are you conducting this dissertation project? Why are you enthusiastic about it?
- Why should anyone care about your subject?
  - What is your target group? What are their Needs?
  - How does your problem analysis look like? (ZOPP)
- What is the big picture, the context that it makes it important for you?
- When are you finished with this project, what is the one point you that you want to leave with your readers?
- Which theories or methods will you use to research? Why?
- What data, sources, objects are most appropriate to work with?
- What will be the implications of your dissertation?

72.2.2. One Page Thesis Outline

- framing your work
  - skeleton of your dissertation
  - viewing the dissertation as a whole

- title
- your name
- goals (include focus statement)
- **table of content**

your commitment

→ the outline is not a corset but a dynamic tool

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72.2.3. Problem-Goal Analysis for the Dissertation – SMART Goals

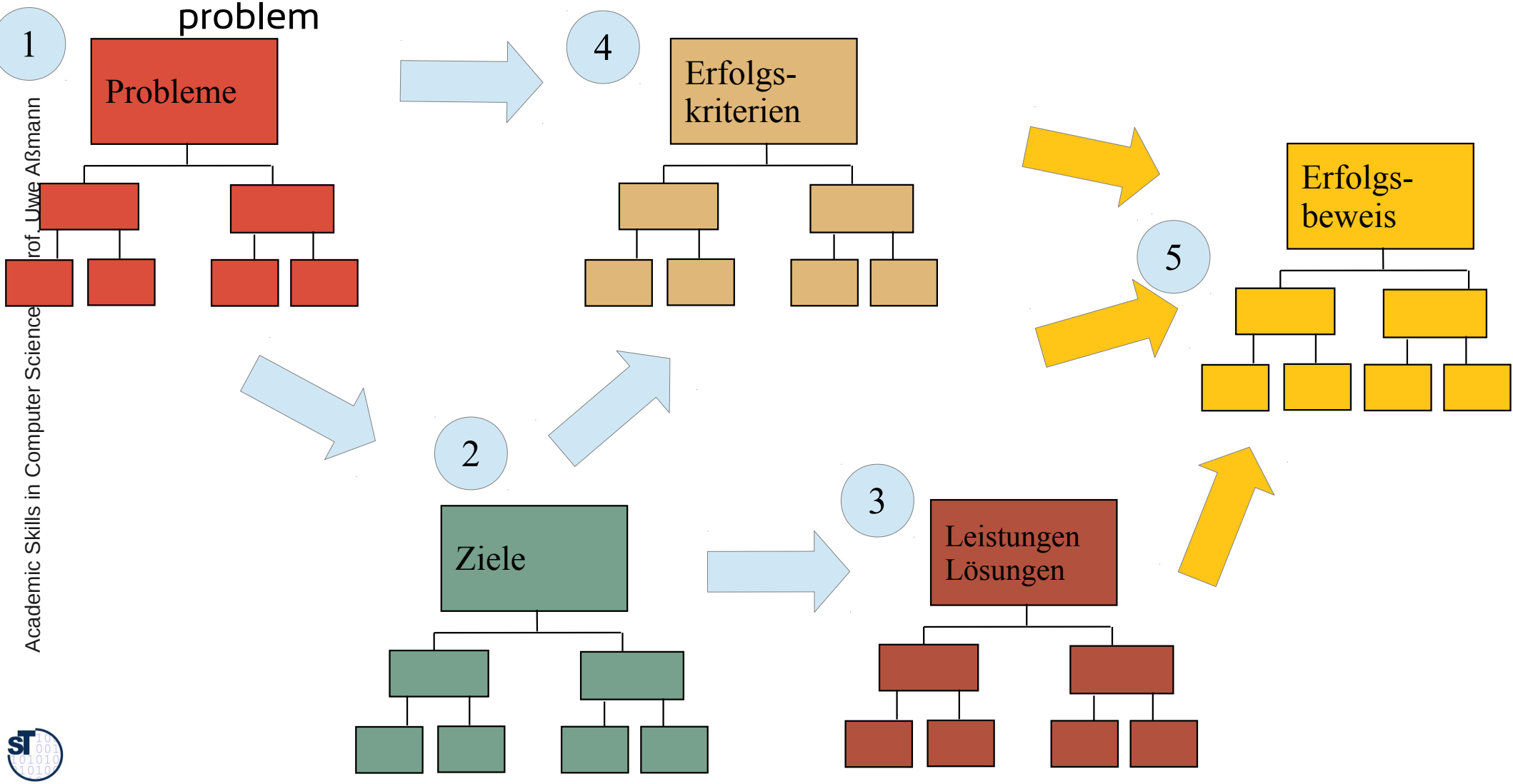
Remember: Goals must be phrased according to the SMART-principle:

- **Simple**: Einfache und verständliche Formulierungen wählen
- **Measurable**: Die Ziele müssen einfach messbar sein (quantifizierbar, überprüfbar)
- **Achievable**: Die Zielerreichung muss erreichbar und damit beeinflussbar sein
- **Realistic**: Die Ziele müssen realistisch und erreichbar sein
- **Timeable**: Die Ziele müssen mit Terminen versehen werden

[Litke Projektmanagement S. 143]

POPP with ZOPP or Similar Problem-Solving Method (vereinfacht)

- **Without ZOPP no PHD! ZOPP is the basis for the introduction, the outline and the defense talk!**
- ZOPP validates whether a solution has reached the goals and solved the problem



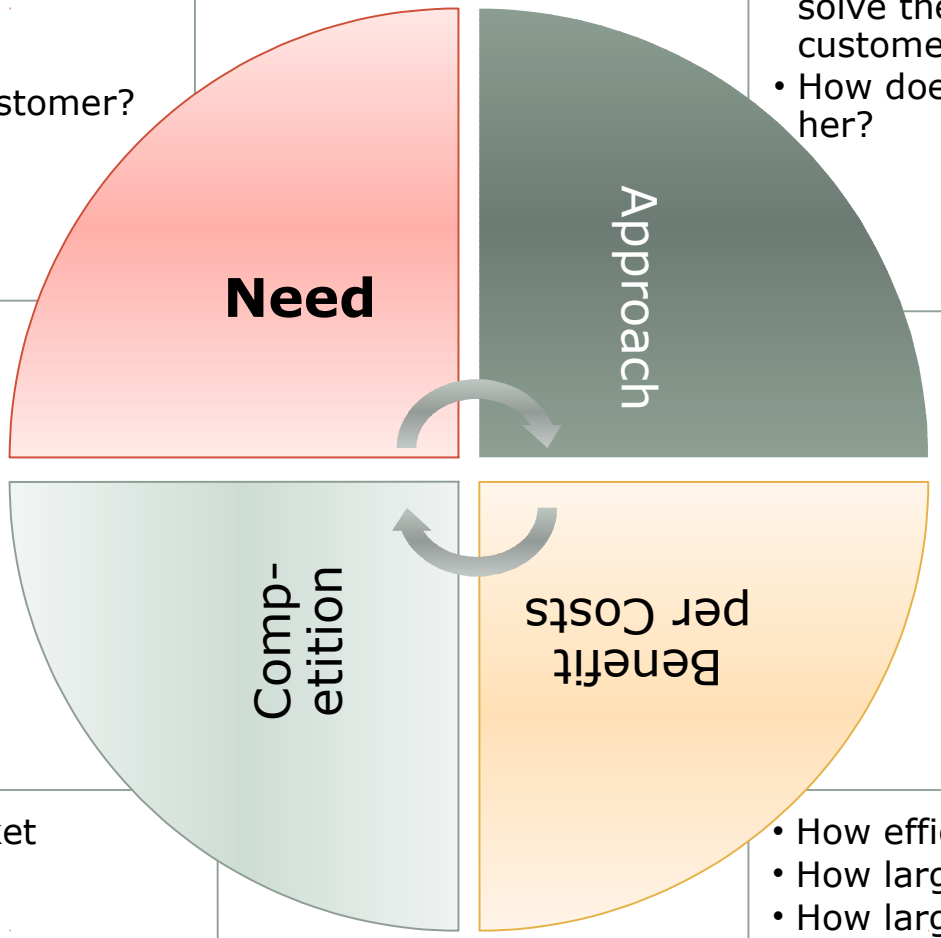
72.2.3 NABC Value Proposition

- After doing a ZOPP, you also should do an NABC Value Proposition [Carlson/Wilmot] and an *elevator pitch*
- The Value proposition is more directed to *customers of your PhD thesis* than to other scientists
- It explains ordinary people what your research is about, which *need* it solves

NABC Analysis [Carlson-Wilmot]

- What does the customer really need?
- What is of value for her?
- What is a *pain* for the customer?

- How does your company solve the needs of the customer?
- How does it create value for her?



- Who is in the market already?

- How efficient is the solution?
- How large is the benefit?
- How large are the costs?

http://www.oulu.fi/english/sites/default/files/content/NABC_presentation.pdf

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Exercise: Application

- For preparing your next application for a job,
- Analyze the future employer with NABC
  - What are his needs?
  - What is your approach?
  - What is your benefits for his costs?
  - Who are your competitors?
- Learn the answers for these questions by heart, to be able to present them in the interview!

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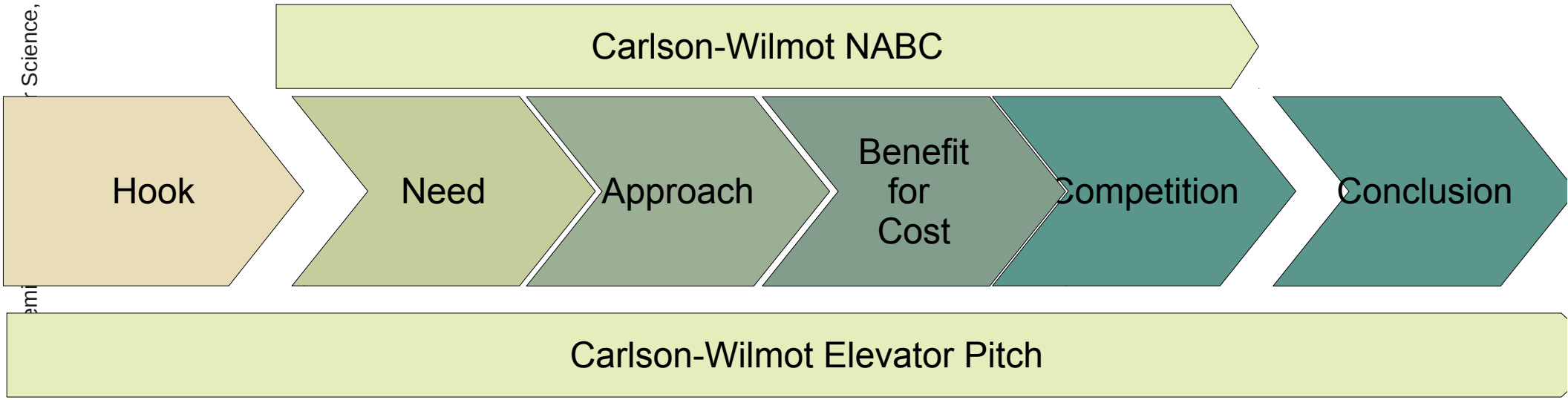
72.2.4 Elevator Pitch

- An **elevator pitch** is a 2-minute speech about the NABC of your PhD thesis project
  - You should be able to tell it an important investor in an elevator (2 min)
- It combines NABC with a *hook*, a gripping introductory remark.



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72.2.5. The Thesis Proposal

- At a certain point in time, your supervisor will ask you for a **Thesis Proposal.**
- The thesis proposal consists of
  - **Thesis Outline** of all chapters, as complete as possible
  - **Skeleton:** Controlling ideas (thesis statements) for all chapters, in form of a 3-4 sentence paragraph, or only 1 thesis sentence
    - The skeleton should already contain the results of ZOPP, NABC, and elevator pitch
- A good Thesis Proposal will tell you what to write.

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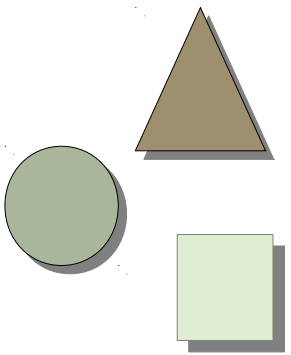
Examples of Full Dissertation Outlines

- Dirk Beyer 2003
  - new method and tool
- Andreas Noack 2007
  - unifying theory and application
- Jens Heidrich 2008
  - excellent empirical study
- Roland Neumann 2010
  - new method and systematic validation
- Christina Videira Lopes 1996
  - Language design of two aspect languages
- Christian Wende 2012
  - new method for language engineering
  - http://nbn-resolving.de/urn:nbn:de:bsz:14-qucosa-88985
- Sebastian Götz 2013
  - new method for energy and resource optimization
  - http://nbn-resolving.de/urn:nbn:de:bsz:14-qucosa-119938

72.3. The PhD Writing Process



Developing a Regular Writing Routine

- plan for regular (daily) writing time
  - when can you write best?
  - don't wait for large blocks of exclusive writing time (they don't come)
  - 20 min time slots ("less is more")
  - don't wait for inspiration or the right mood
  - writing may trigger inspiration
  - have a "silent hour" every day

- have a designated writing space
  - get unplugged from the net (no eMail, phone, SMS, news, chat, …)
  - have a clean desk
  - go to library or other room
  -

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How to write?

- stick to your long outline
  - write in the outline document
- Draw a storyboard
  - Find the points, controlling ideas, controllers

- draft text (creative mode)
  - Textify
  - Find the skeleton
  - block out the internal critics
  - use colloquial style
  -
- revise the text (analytical mode)

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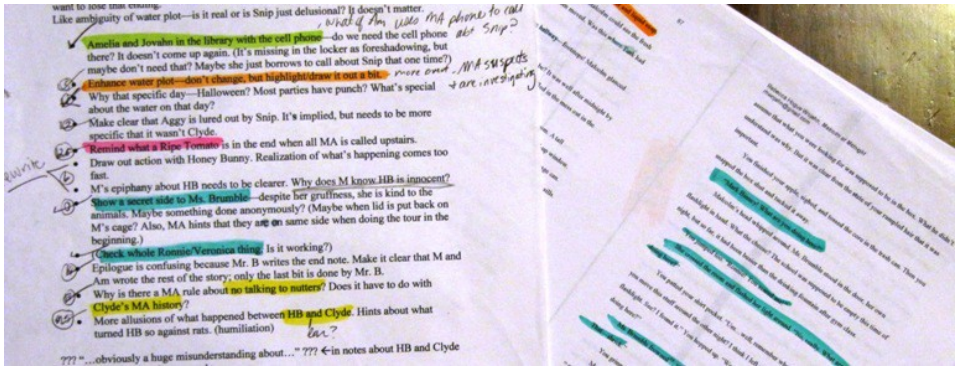
The Role of Revision

- the single source principle
  - don't scatter your writing over many documents
  - use revision control tools
- write – revise – re-write
  - incremental cyclic refinement process
- solicit feedback through peer reviews



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Overcoming Writer's Block /1

- perfectionism
  - major trap for bright students

→ write "shitty first drafts"
  - try talking text (→ build dialogue situations)
  - make bad texts brilliant later

→ relax / accept imperfection
  - accept deadlines
  - listen to your supervisor(s)
    remember: THEY award you the doctoral degree

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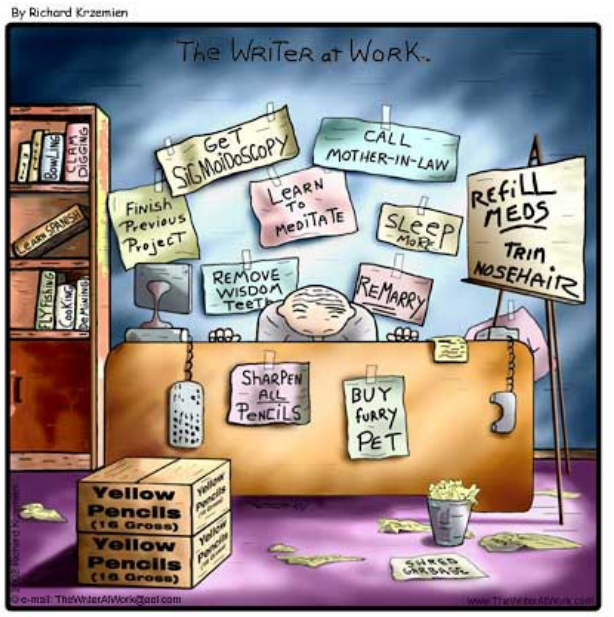
Overcoming Writer's Block /2

- procrustination
  - you wait for inspiration or large blocks of time
  - you do all-nighters
  - you clean kitchen / cook meals for friends / help your fellow students/ install new tools / … instead of working on your dissertation



Pressing tasks to be completed before beginning a new project.

→ set priorities and routine
  - unplug / be ascetic / work continuously in small chunks
  - get incentives for completing tasks

→ establish social control
  - team up with writing partner
  - define and meet reasonable milestones and deadlines

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Overcoming Writer's Block /3

Dissertation writing
is not for sprinters
but for marathon runners

- impatience
  - you want things get done to quickly
  - not enough pre-writing done
  - you start writing when you are not ready to write
  - you work on to many things at the same time

→ control your projects
  - plan for breaks
  - …

→ stick to the 24-hour-rule
  - only accept new tasks after 24 hour re-think time

→ be patient and forgiving with yourself

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Overcoming Writer's Block /4

- Depression / Dysphoria
  - "Ich bin halt mit der Gesamtsituation unzufrieden"
  - almost every PhD student suffers from depression phases
  - after first year + half year before expected end

→ establish social support network
  - workshops & conferences

→ seek professional coaching

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Communicate (about) your Dissertation Topic

- it is YOUR project, you are responsible
- ~~manage~~ interact with your advisor
  - regular meetings “jour fixe”
- use internal seminars (PhD colloquium) to present
  - use demo days to show your tools and get feedback
- go to workshops / doctoral symposium
  - plan for publications on intermediate results
- develop a 6 min presentation of your dissertation topic
- talk to non-specialists about your topic! Use your elevator pitch!

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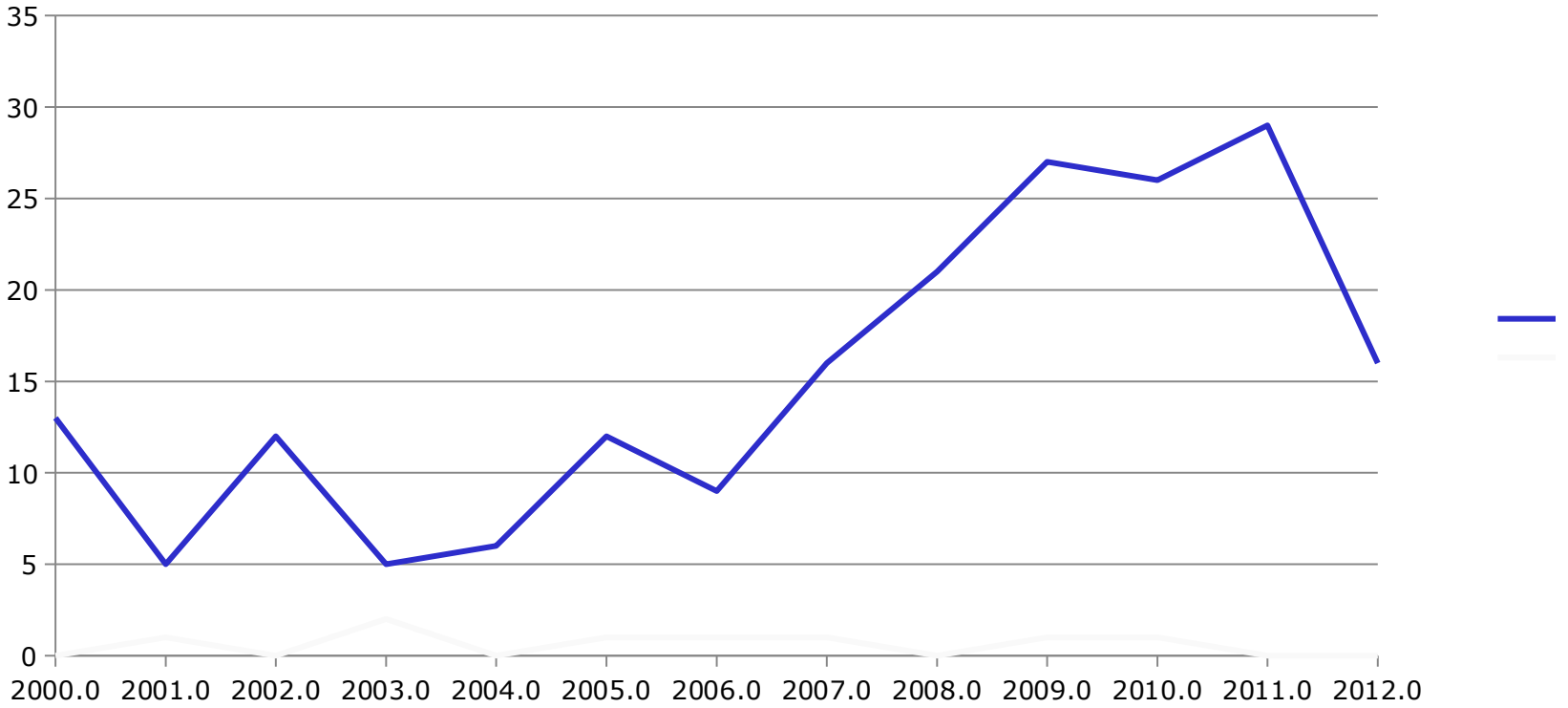
You are Not Alone: Yearly Number of PhD and Habilitations at Fakultät Informatik



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By the way …

… your dissertation is not your life, it is **part** of your life!

- don’t overestimate the importance
- nourish the important relationships in your life

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End

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