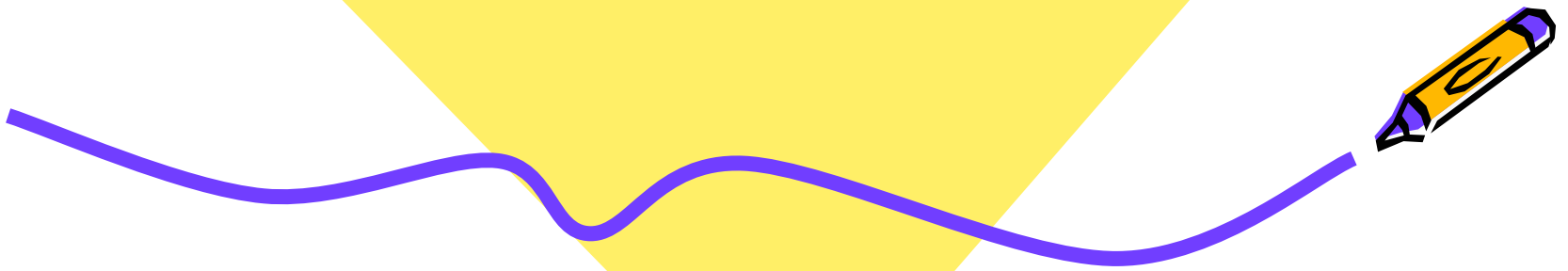




# Thesis Workshop

January 29, 2002

Anke Weber [anke@csr.uvic.ca]





“Everybody is talented, original, and has something important to say.”

Brenda Ueland, *If you want to write*, 1938

“If you want to write you can write”

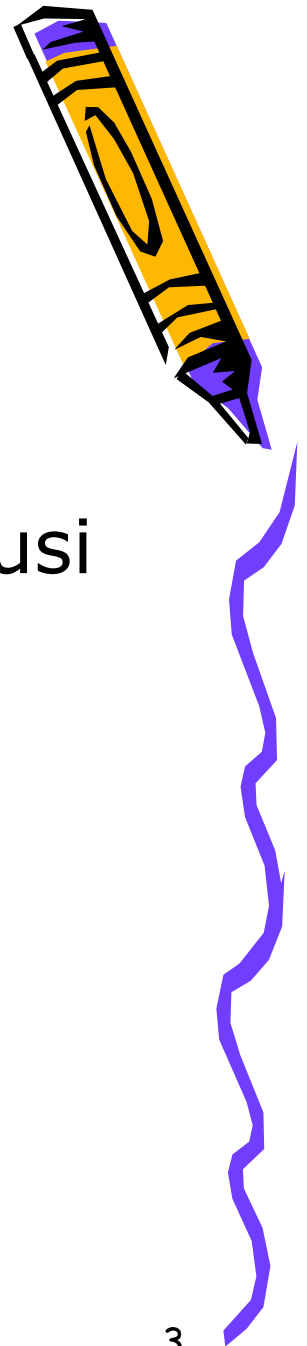
especially as you know how to program



8/21/2001  
Anke Weber

Thoughts on Thesis  
Writing and Research

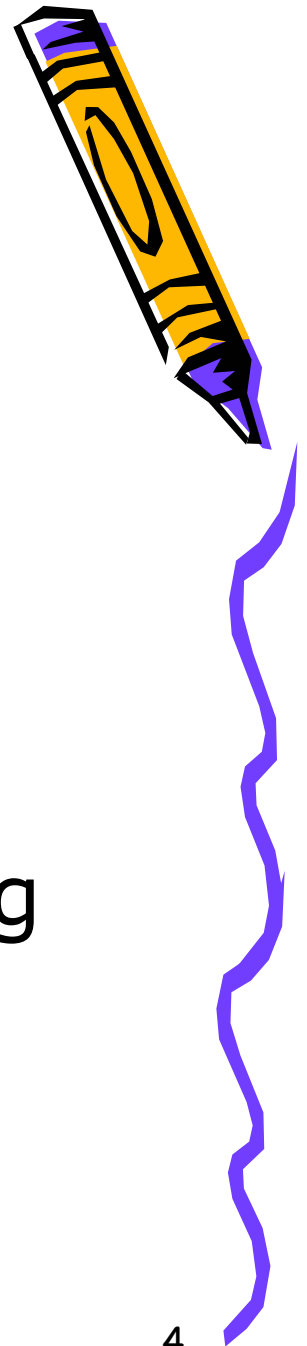
# Contents



- Introduction and your input
- Experiences: Andrew, Mechthild, Hausi
- Thesis Outline (Hausi, Sachen)
- How to start, keep going with and complete your thesis
- How to become organized
- What tools to use



# Your Input



- Where are you in your thesis writing process?
- What is your most burning question about the thesis writing process?



# Andrew's Experiences



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Thoughts on Thesis  
Writing and Research

# A different view - mm

- Become aware of your passion, your interests
- Clarify your research question(s)
- Think about your research methodology – how are you going to do what you would like to do?
- Locate yourself in the research field
- Become used to the messiness – it's an iterative process
- Become part of a supportive team



# A Note from Peggy



- **Email excerpt by Mary Shaw for Participants of the Doctoral Symposium at ICSE 2001**

- **The Elevator Presentation**

From time to time we all need a short self-introduction that identifies our current research interest. To make this need vivid for a student, I sometimes say, "Suppose that you're at a conference getting on the elevator to go to your room. The head of the department where you would most like to be recruited (but who you don't know personally) gets on the elevator too. It's just the two of you. You have about 20 seconds to make an impression before the elevator stops. What do you say?"

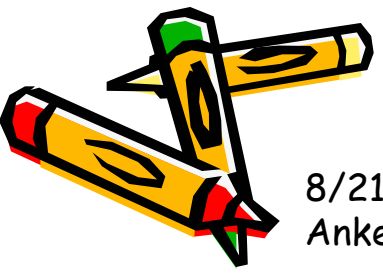
- **The Thesis of the thesis**

At the last doctoral symposium I attended, many of the students were halfway through their presentations before they stated their thesis topics; some never did have an explicit statement. Some said what they were working on but not what they were contributing to solving the problem. So I suggest that we recommend making an explicit statement of the research hypothesis or expected result early in the presentation. It should involve Doing verbs ("improve X by Y%", "prove that Z", "develop an accurate model of W", "determine V") rather than TRYing verbs ("study P", "investigate Q", "work on R", "think about S")

- **The Coming-of-Age of Software Architecture Research**

Mary Shaw talks about doing research in Software Architecture, but the lessons she describes are useful for all areas in software engineering.

[http://www2.cs.cmu.edu/afs/cs.cmu.edu/project/vit/www/paper\\_abstracts/keynote01.html](http://www2.cs.cmu.edu/afs/cs.cmu.edu/project/vit/www/paper_abstracts/keynote01.html)



# Bits of history, words of advice

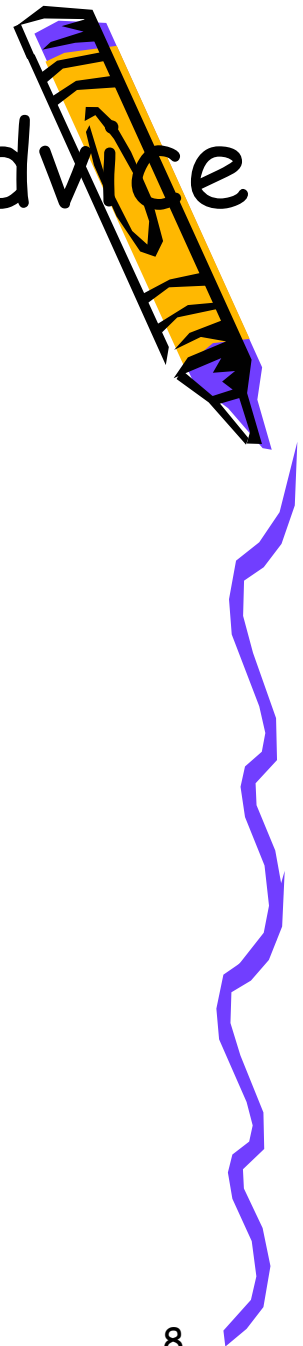
(by Hausi Mueller)

- What do you want to do after your degree?
  - Academic career
  - Research lab
  - Entrepreneur
  - Developer
- Text processing
  - Use whatever you are used to or
  - Whatever your friends are using
- Talk to people
  - Get different perspectives
  - Read other theses
  - Co-supervision
- Evaluation-centric thesis development



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Thoughts on Thesis  
Writing and Research





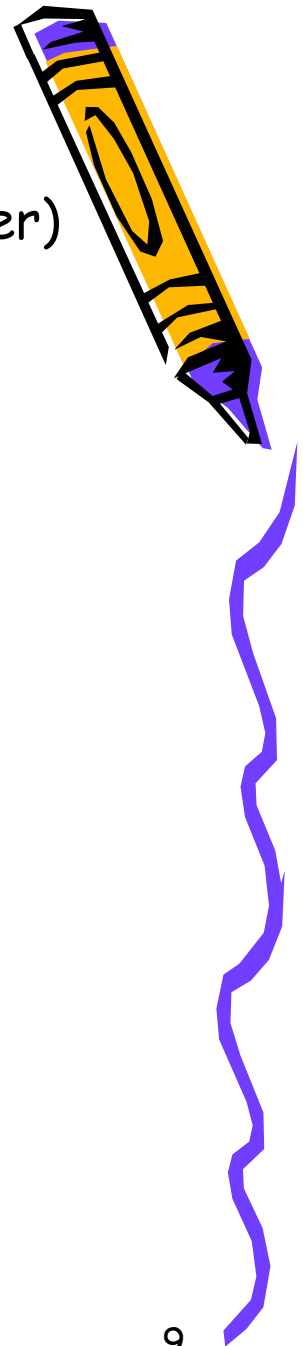
# Example Outline (by Hausi Mueller)

1. Introduction
  - Motivation
  - Problem
  - Approach
  - Solutions
  - Thesis outline
2. Related work
3. Theory, foundations, background
4. Problem definition, your approach
5. Solutions
6. Detailed algorithm
7. Evaluation, case studies, experiments
8. Conclusions
  - Summary
  - Major contributions
  - Future work
9. Appendices
  - Programs, scripts
  - Measurements
  - Proofs



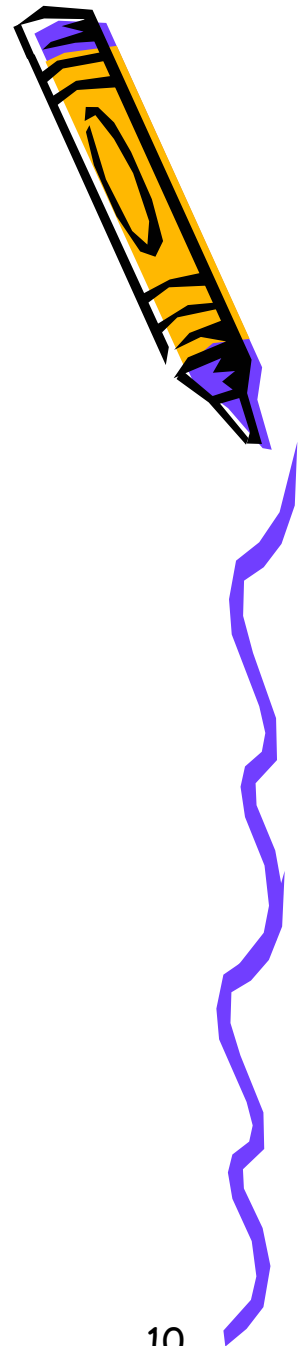
8/21/2001  
Anke Weber

Thoughts on Thesis  
Writing and Research

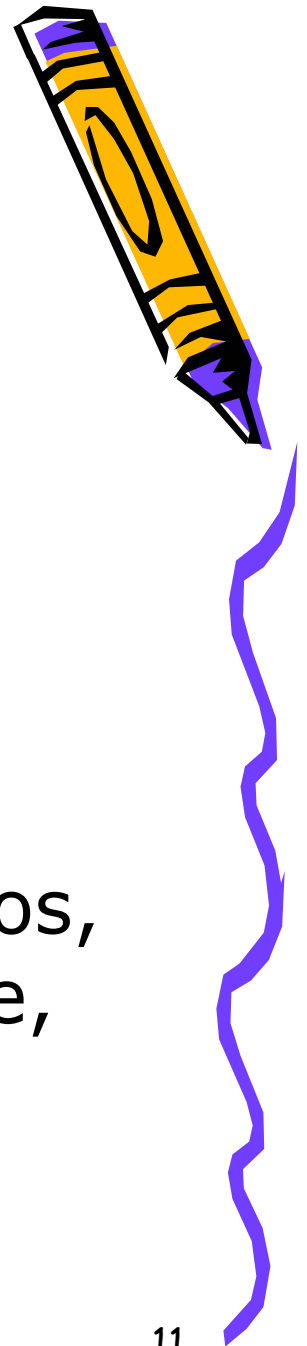


# Sachen's Outline

1. Introduction
  - Motivation
  - Problem
  - Approach
  - Solutions
  - Thesis outline
2. Related work
3. Background
4. Methodology
5. Solutions
  - Contribution
  - Domain description
  - Description of the framework
  - Theoretical implications
  - Practical implications
  - Limitations
6. Case studies
7. Conclusions
  - Summary
  - Major contributions
  - Future work
8. Appendices
  - Programs, scripts
  - Measurements
  - Proofs



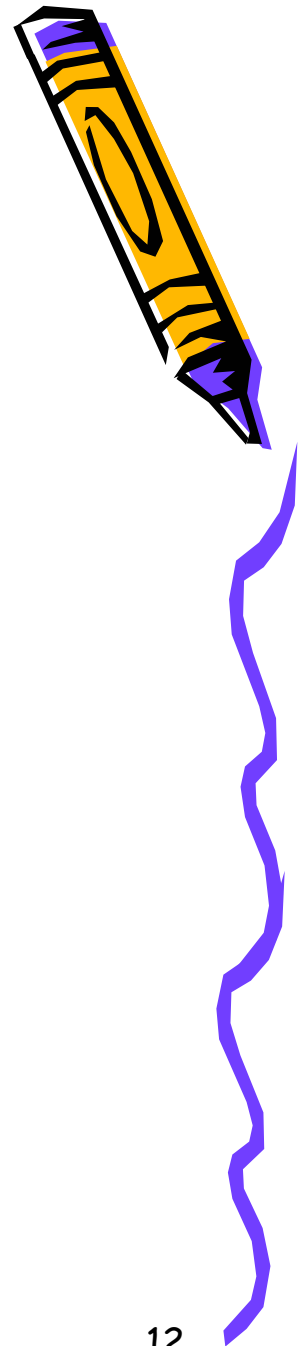
# Start writing now! Why?



- to develop critical thinking and reasoning skills
- to help refine your ideas
- business means writing
  - progress reports, proposals, memos, resumes, business correspondence, documentation



# What to write?



- Reading logs
- Journal of ideas
- Summaries of papers
- Summaries of related work
- Questions and ideas
- Short idea/workshop papers





# What are the criteria for a well-written program?

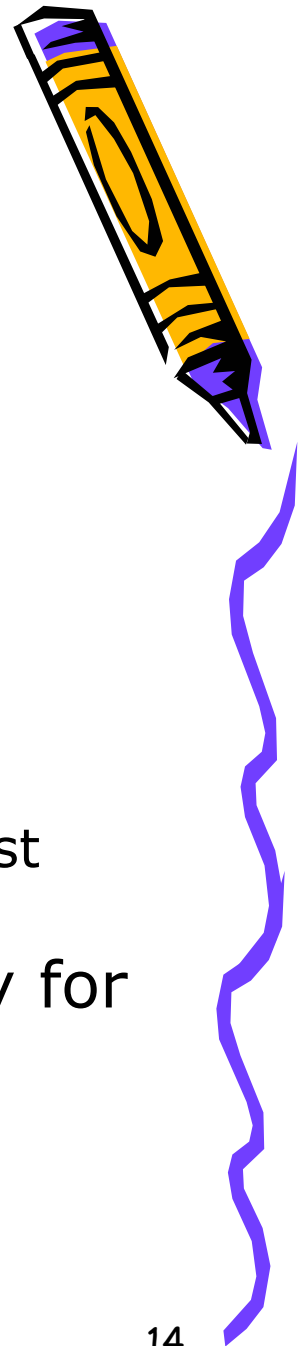
- meets the specifications: **Content**
- concise, well-organized, easy-to-read: **Clarity**
- correct syntax: **Grammar, Spelling**



**good writing** is  
clear, logical, and easy to read



# How to start your thesis?

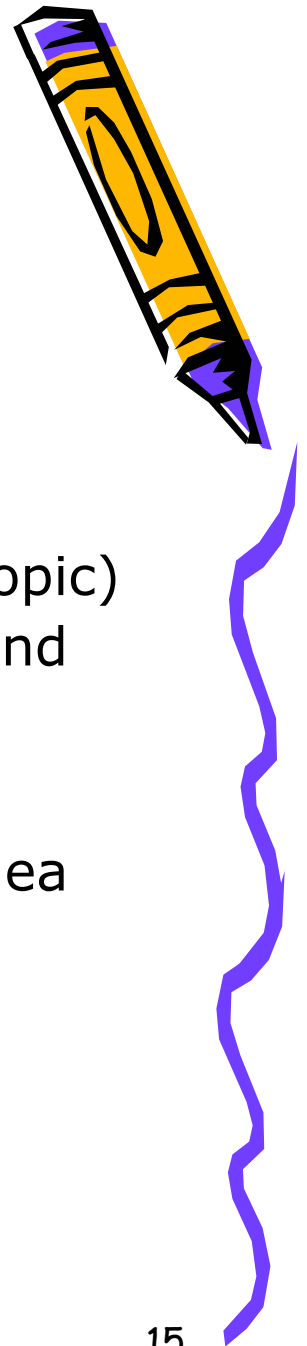


- Produce an outline
  - Use what you have written so far
  - Discuss it with your advisor
- No idea? Start asking questions
  - ... then ask questions on your answers, and structure it
  - Example: What is your topic about? What are intelligent agents? What did you work on the last month? How do they communicate?
- Start with chapters that are (not too) easy for you or where you have lots of ideas and material

Start early. Writing takes long!



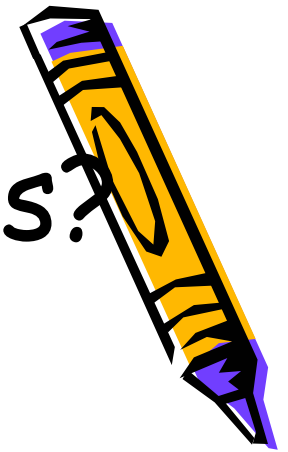
# How to start a chapter?



- Use the title as your topic
- Getting started: Free Writing
  - Write for a fixed period of time, 5-10 minutes
  - Put down everything (even if unrelated to the topic)
  - Free write again with more concrete ideas in mind
- Focusing on a topic: Probing
  - Ask questions on your topic
  - What related work did you find? What is your idea on this approach? What is different?
- Finding something to say: Brainstorming
  - Quickly write down topic related fact, idea or association that comes to your mind



# How to organize your ideas?



## traditional format

## box format

## mind-map

### I. Geographic feature #1: Himalayan Mountains

- 1) Description:
- a) forms an protective arch around India's northern border.
  - b) the tallest mountains in the world.
  - c) very difficult to cross

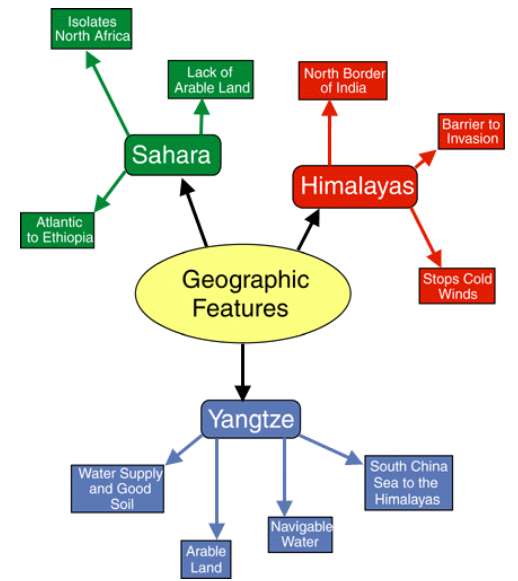
- 2) Effects on civilization or nation
- a) acted as a barrier to invasions
  - b) isolates India from cold northern winds

### II. Geographic feature #2: Sahara Desert

- 1) Description:
- a) worlds largest desert
  - b) stretches from Atlantic Ocean to Ethiopian Highlands

- 2) Effects on civilization or nation
- a) isolated northern Africa from rest of continent
  - b) lack of arable land make food production

Three Geographic Features	Description of Feature	Effect on Civilization or Nation
<b>Himalayan Mountains</b>	<ul style="list-style-type: none"> <li>•across northern border of India</li> <li>•tallest mountains in world</li> </ul>	<ul style="list-style-type: none"> <li>•stopped invasions, isolated India</li> <li>•stops cold northern winds</li> </ul>
<b>Sahara Desert</b>	<ul style="list-style-type: none"> <li>•biggest desert in world</li> <li>•stretches from Atlantic to Ethiopian Highlands</li> </ul>	<ul style="list-style-type: none"> <li>•isolated North Africa from Central Africa</li> <li>•causes a lack of arable land in Ethiopia</li> </ul>
<b>Yangtze River</b>	<ul style="list-style-type: none"> <li>•longest river in China</li> <li>•runs from East China Sea to mountains of Tibet</li> </ul>	<ul style="list-style-type: none"> <li>•provides water and soil</li> <li>•provides food</li> <li>•transportation and communication resource</li> </ul>

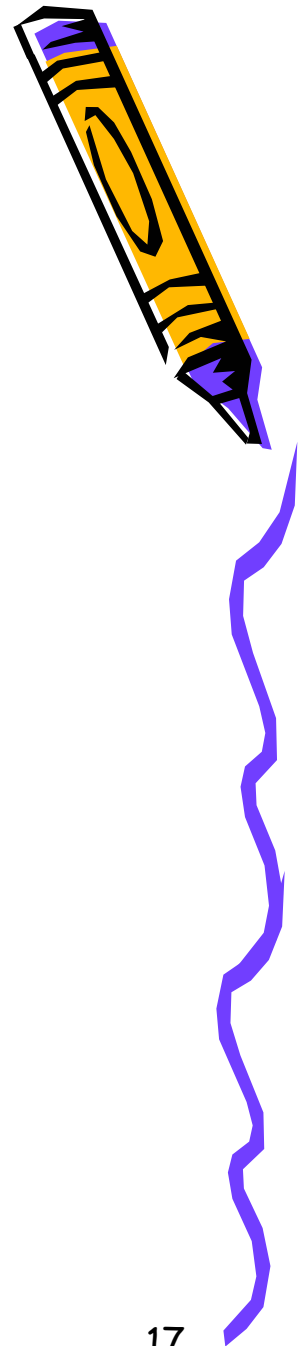


Personal Brain,  
<http://www.thebrain.com/>  
 Brainstorming Web page:  
<http://www.brainstorming.co.uk/>





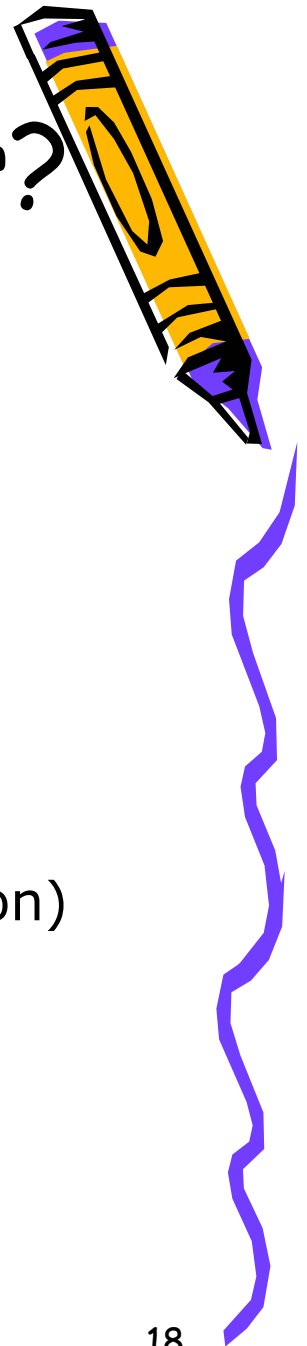
# How to write a chapter?



- Review your notes
  - Do you need more research/work?
  - Do you need to include more details?
  - Write a first draft that you plan to show no one
- Introductory paragraph
  - describe main idea/work in this chapter
  - relate it to the overall thesis topic
- Make an outline with subsections
- Write subsections
- End with summary and results



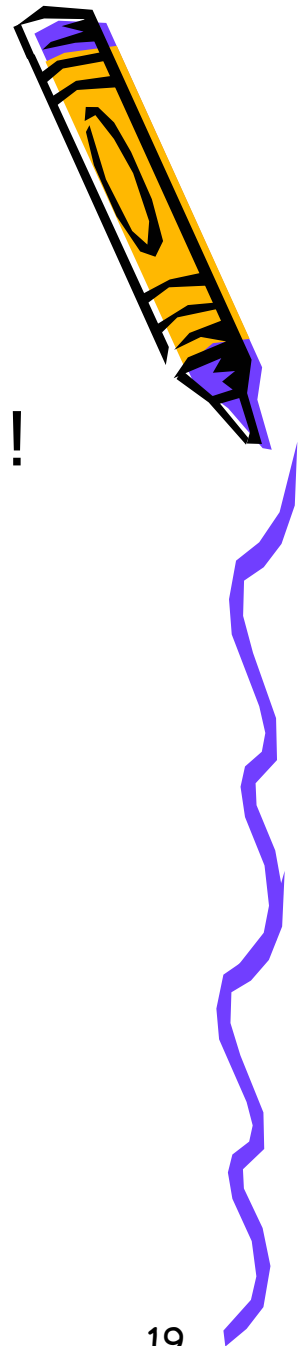
# How to complete a chapter?



- Review and edit
  - content related
  - correct grammar and spelling
  - use spell-checkers
  - read loud
- ask somebody else to read it
  - colleagues
  - native speakers
  - advisor (make sure it's a very progressed version)
- expect comments
- take advice (or not)
- correct and rewrite if necessary



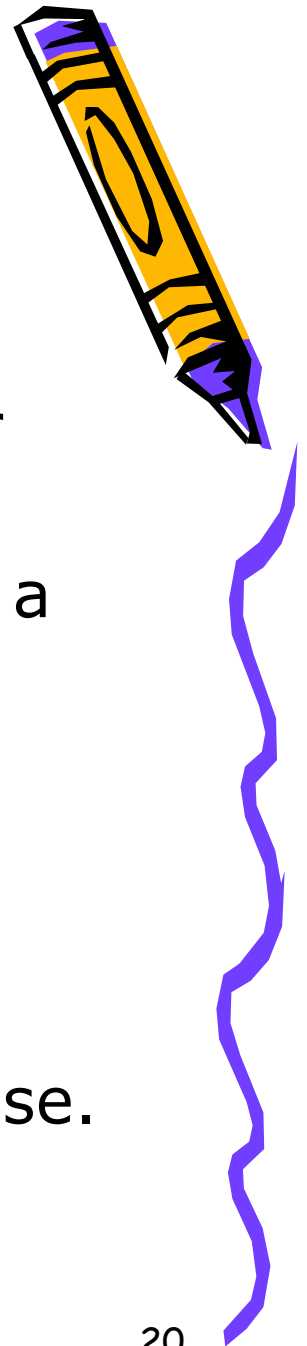
# How to keep going?



- You have written successfully before!
- Think of writing small related pieces
- Try to write (15 minutes) every day
- Try to increase the time
- Find a good daily time for writing
- If you sit down to write: write!  
(even if it is nonsense)



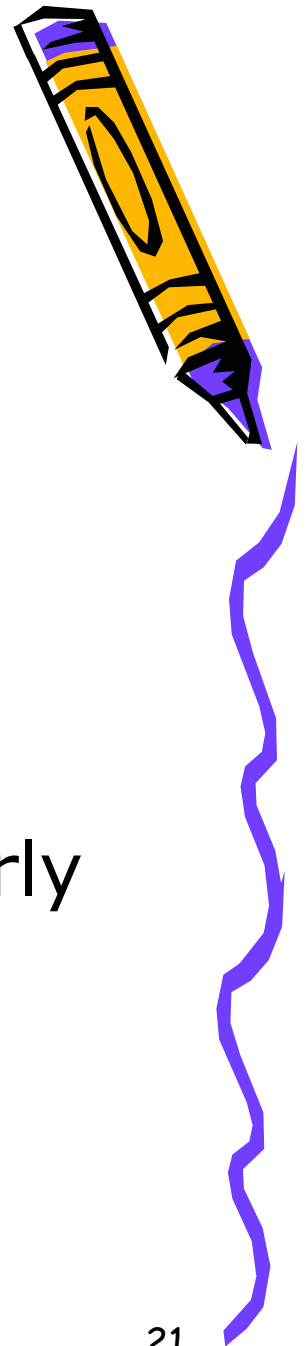
# How to get unstuck?



- Discuss with your colleagues, your advisor
- Maybe you need some more research?
- Do some brainstorming (see “how to start a chapter”)
- Relax
  - Go for a walk
  - Any activity that keeps your brain unoccupied: no reading, no TV
  - Take advice: consider a writing group
- Forget it for the moment. Do something else.



# How to become organized?



- one-minute version of your thesis
- five minute version of your thesis
- to do list
- set goals with deadlines
- update and summarize notes regularly
- deal with the university paperwork
- make back-ups every day



# How to become organized?



- a word-processor file for each chapter and one for the references
- put relevant notes in the chapter files
- physical filing system with folders for each chapter
- electronic bibliography
  - pointers to the paper files
  - keep and file papers you've read



# How to complete your thesis?



- Keep a regular schedule
- Consider taking a writing course
- UVIC Thesis Completion Group

<http://www.coun.uvic.ca/groups/ThesisCompletionGroup.html>

“A thesis is a very large work. It cannot be made perfect in a finite time.”

**Keep to your deadlines!**



# Important Deadlines - thinking backwards...



- Application for graduation (A&R)
  - July 1<sup>st</sup> for November; December 1<sup>st</sup> for June
- Request for oral examination (Grad Studies)
  - 20 **working** days prior to defense date one (MA), two (PhD) thesis copy each to external examiner and grad studies
- Convocation (Grad Studies)
  - **June:** Grad Studies needs complete, defended thesis (usually) last day of April – admissions
  - **November:** Grad Studies needs complete, defended thesis (usually) last day of September





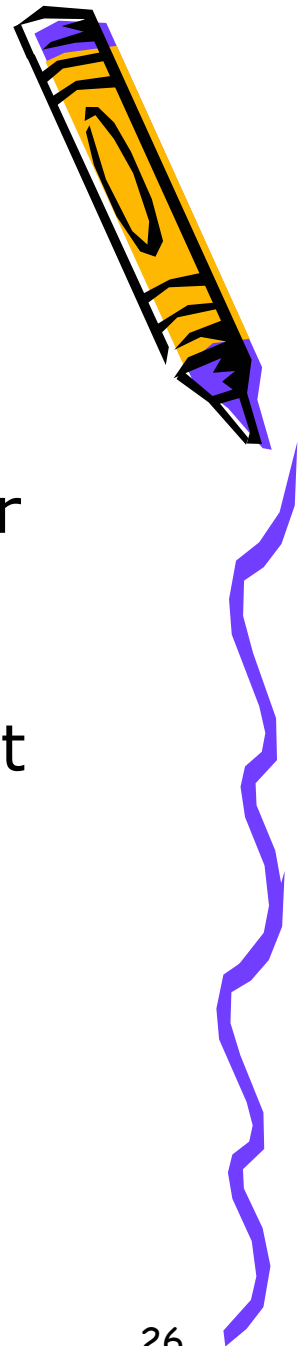
# Timeline Example



- 2000/2001 - course work, defining research questions
- July through December 2001- Thesis writing process (approx. half a year?), in contact with supervisor/peers
- December 01, 2001- Application for graduation submitted
- January/February - First good draft to committee members
- February/ March - Committee decides its defendable, setting of oral examination date
- March/April - Request for oral examination
- March/April - Defense date (leaving time for revisions)
- April 30, 2002 - Completely completed, revised thesis handed in to Graduate Studies
- June 2002 - Convocation



# What about style?



- make clear what is yours (references)
- short sentences but you might need longer sentences to be accurate
- balance between words and illustrations
- thesis is a connected, convincing argument not a list of facts and observations
- active voice and “we”
- no master piece of DTP
- no big gaps, fonts, margins or line gaps

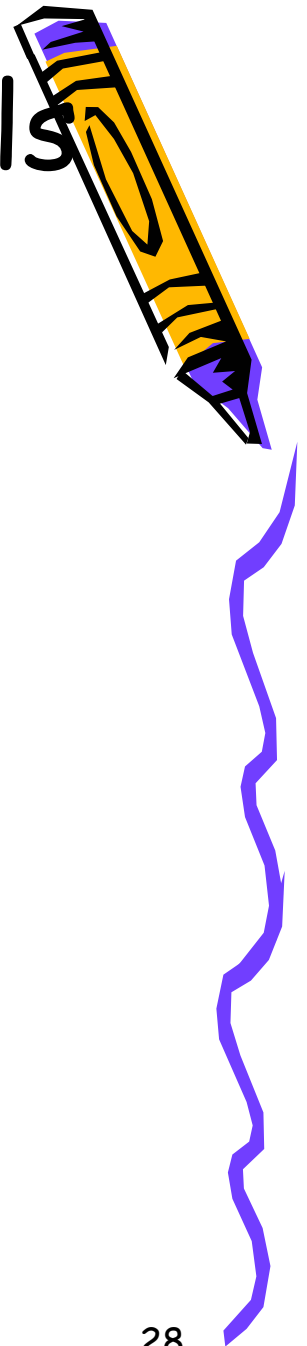


# What writing tools to use?

- Latex and bibxtex
  - especially good for mathematical formulas
- Adobe FrameMaker and bibtex
  - good if you have images
  - get templates from friends (they are hard to create)
  - use “book” features
- Word and Endnote or Biblioscape
  - Word is good for grammar checking and spelling
  - use book/master page features
  - Endnote is expensive, Biblioscape is better but not very stable
- StarOffice? for free, how to do references?
- Corel Suite



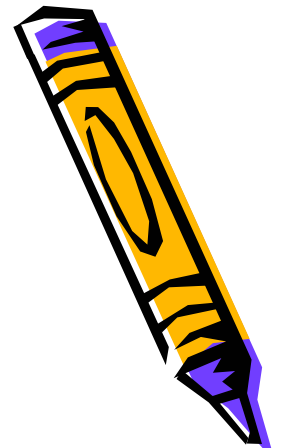
# What organizational tools to use?



- Search engine overview
  - <http://searchenginewatch.com/>
- ACM library
  - UVic has access
  - <http://www.acm.org>
- Helper tools
  - electronic bibliography, e.g. bibtex, Endnote, Biblioscape
  - good bookmarking tools (Check&Get)
  - web page annotations tools



# What presentation tools to use?



- Slides
  - Powerpoint, StarOffice, (Latex Slide addition?)
- Posters
  - MS Publisher (easy-to-use templates), FrameMaker, PageMaker (advanced), Powerpoint (not recommended)
- Graphics
  - Adobe Photoshop, Corel Suite (?), Jasc PaintShop Pro (comparable to Photoshop but cheaper)
  - more links: <http://mardiweb.com/web/links/>

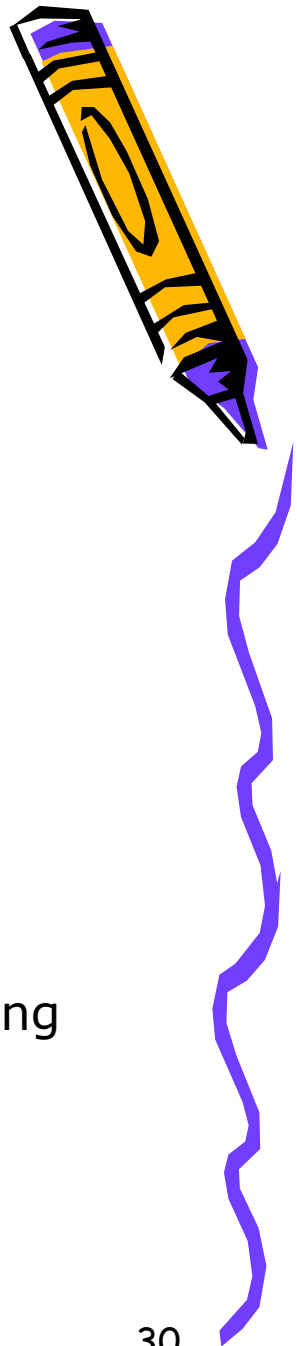


# Online References - UVic

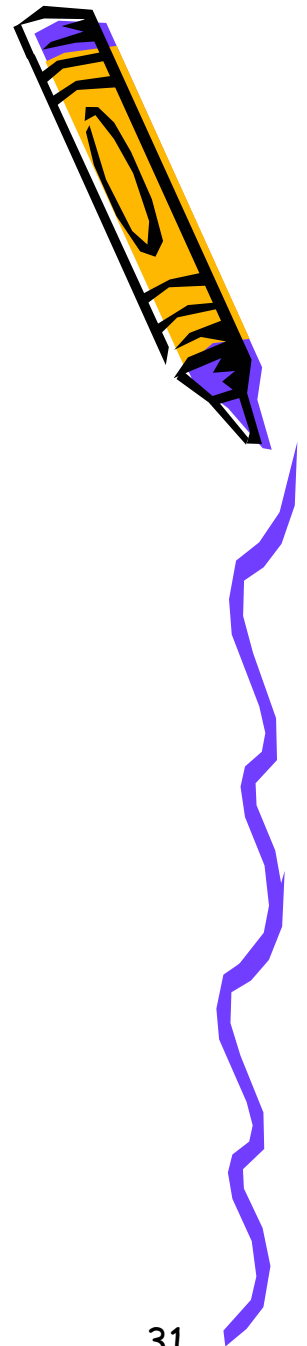
- Guidelines for the Preparation of MA & PhD Theses
  - <http://web.uvic.ca/grar/Sept00thesisguide.pdf>
- Guidelines for setting up oral examinations
  - <http://web.uvic.ca/grar/orals.html> (general)
  - <http://web.uvic.ca/~gradean/AUDORAL.html> (audio)
  - <http://web.uvic.ca/~gradean/VIDORAL.html> (video)
- Request for oral examination
  - <http://web.uvic.ca/grar/oralreq.html>
- Application to Graduate
  - <http://web.uvic.ca/grar/ApplicationforGrad2002.pdf>
- UVic Thesis Completion Group
  - <http://www.coun.uvic.ca/groups/ThesisCompletionGroup.html>
- UVic Writing Department: Technical Writing (great writing and grammar links)
  - <http://www.finearts.uvic.ca/pwriting/pwtech.html>

Professional Writing Department

<http://web.uvic.ca/pw/>; <http://www.finearts.uvic.ca/writing/>



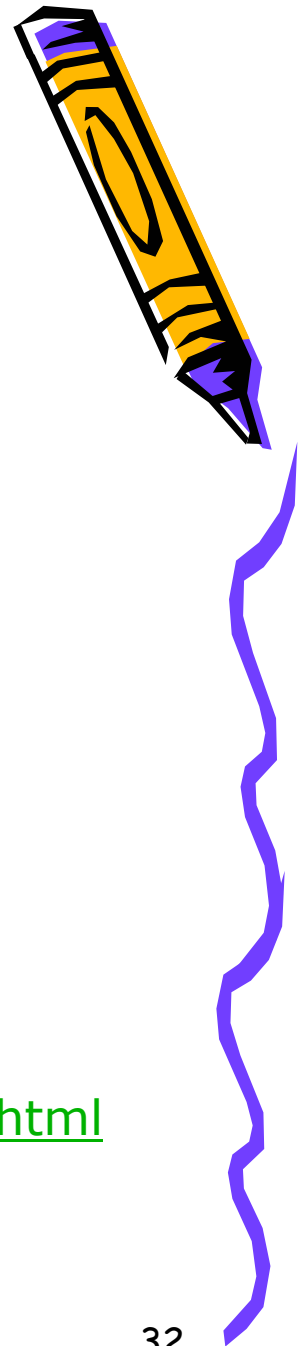
# Online References - Organization



- Organize your writing!  
<http://www.oswego.org/staff/tcaswell/wg/outline.htm>
- Brainstorming Web Site  
<http://www.brainstorming.co.uk/contents.html>
- Personal Brain  
<http://www.thebrain.com/>



# Online References



- Advice on Research and Writing  
<http://www.cs.cmu.edu/afs/cs.cmu.edu/user/mleone/web/how-to.html>
- Graduate School Survival Guide  
<http://www-smi.stanford.edu/people/pratt/smi/advice.html#read>
- How to Write a PhD Thesis  
<http://www.phys.unsw.edu.au/~jw/thesis.html>
- How to Write a Master's Thesis in Computer Science  
<http://cs.fit.edu/wds/guides/howto/>
- Writing a Thesis  
[http://web.mit.edu/writing/Writing\\_Types/writingthesis.html](http://web.mit.edu/writing/Writing_Types/writingthesis.html)





# Books and Papers



- Literacy for computer science majors  
Stewart A. Denenberg. In Proceedings of the symposium on Computers and the quality of life February 14 - 15, 1996, Philadelphia, PA USA
- Patterns for College Writing, Laurie G. Kirszner, Stephen R. MandellSt. Martin's Press, 1986
- Writing Your Dissertation in Fifteen Minutes a Day, Joan Bolker, 1998
- Creative Writing
  - Ideas into Action, Arnie Keller (Director Professional Writing), <http://www.pearsoned.ca/keller/>
  - If you want to write  
Brenda Ueland, Graywolf Press, 1998
  - Becoming a writer  
Dorothea Brande, Harcourt, Brace, and Company, 1934

