

Proseminar

«Computer Science Perspectives in Human Computer Interaction»

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Human Centered Computing @ FU Institute for Computer Science

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Please note

The following slides are mainly taken from Marcel Kyas used within the Pro-Seminar Technical Computer Science (PS-TI) in Term 2010/11.

Outline

1. Review of Course Learning goals
2. General remarks on the course concept
3. Structuring a research article
4. A short style guide
5. Ethics and Code of Conduct
6. The reviewing process
7. Questions

Learning Goals of this Course

1. You can describe selected approaches and concepts from the area of human computer interaction.
2. You can determine and summarize relevant literature from the research field.
3. You know how to write a research paper and you are aware of existing pitfalls (e.g., plagiarism).

What did you do so far?

- » You read many papers
- » You summarized their content orally
- » You identified central ideas/concepts
- » You discussed scientific ideas

We partly talked about existing weaknesses and improvements in articles.

What will you “learn” today?

You will “learn” to

- » define your topic
- » gather the material
- » structure the paper
- » write the paper
- » submit it on time

Things to think about

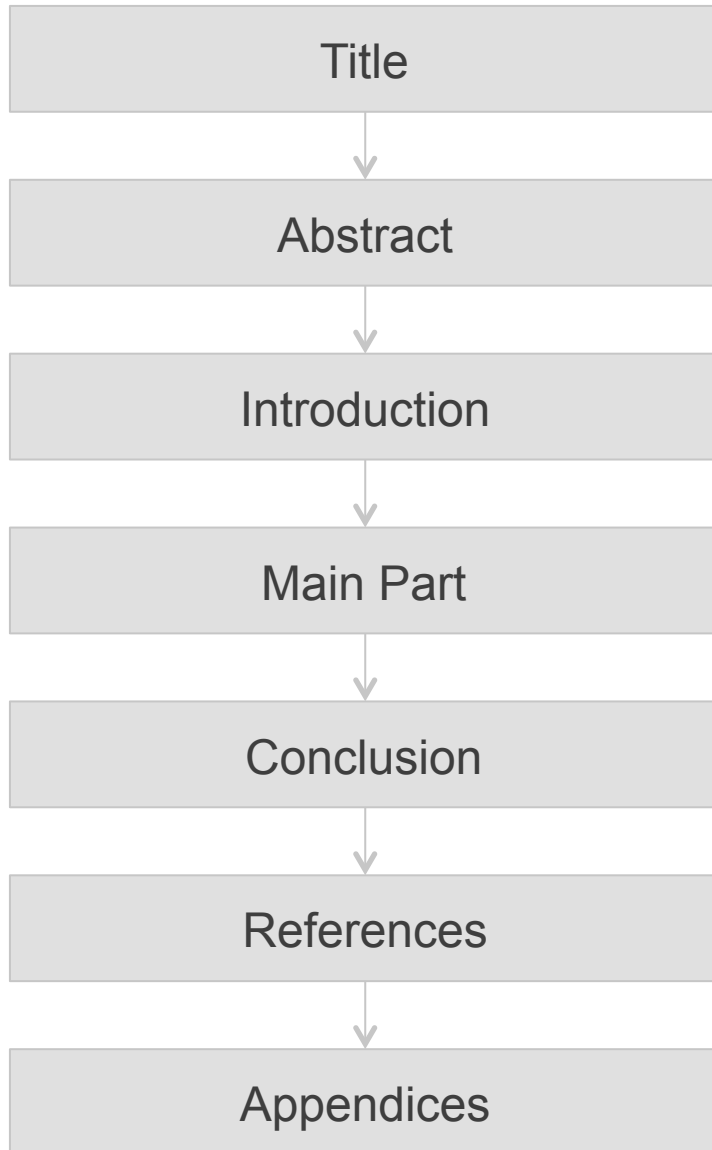
The process of writing

- » Good text is not written, it is rewritten and edited
- » If you don't start, there is nothing to edit
- » Writing takes time

Know your audience

- » Who is your reader?
- » What can you assume that he already knows?
- » What can you imagine he does not know?
- » Keep in mind: You have more readers than your supervisor!

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Structuring a Research Article



- » Every scientific paper shares the same structure
- » Every text must have a title, an introduction, a main part, and a conclusion
- » Depending on venue and length, some parts may be omitted
- » The structure of the main part depends on the type of paper
- » Format is given by the guidelines

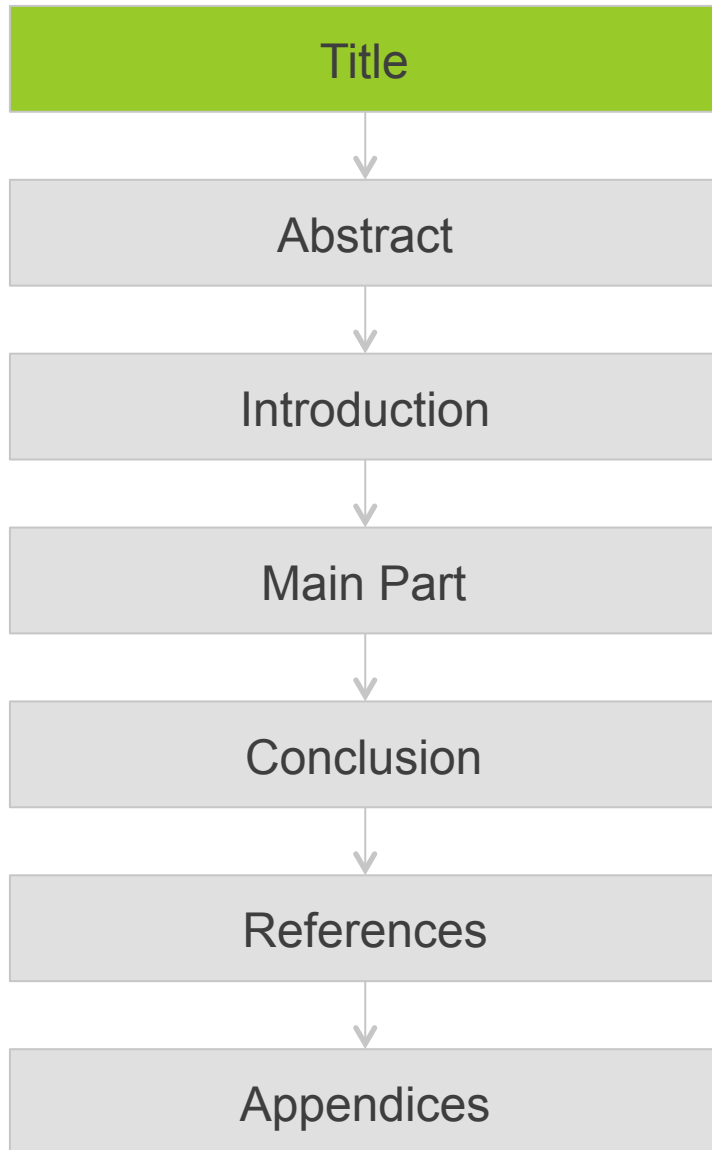
Format

Project report template is available under the following link ACM SIG Proceedings Templates Page (Option 1):

<http://www.acm.org/sigs/publications/proceedings-templates>

Either Microsoft Word format or Latex format is acceptable (but Latex is preferred)

Five Pages are expected (excluding appendix).



- » Each article must have a meaningful title
- » A good title is short (at most 7 words)
- » Each word is relevant to the papers content
- » Avoid adverbs and adjectives if possible
- » The title is followed by name of the authors and their affiliation
- » Sometimes, a contact address is given

Example you already know

CHI 2009 ~ Advanced Web Scenarios

April 8th, 2009 ~ Boston, MA, USA

Amplifying Community Content Creation with Mixed-Initiative Information Extraction

Raphael Hoffmann, Saleema Amershi, Kayur Patel, Fei Wu, James Fogarty, Daniel S. Weld

Computer Science & Engineering
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Another Example

neonion - combining human and machine intelligence

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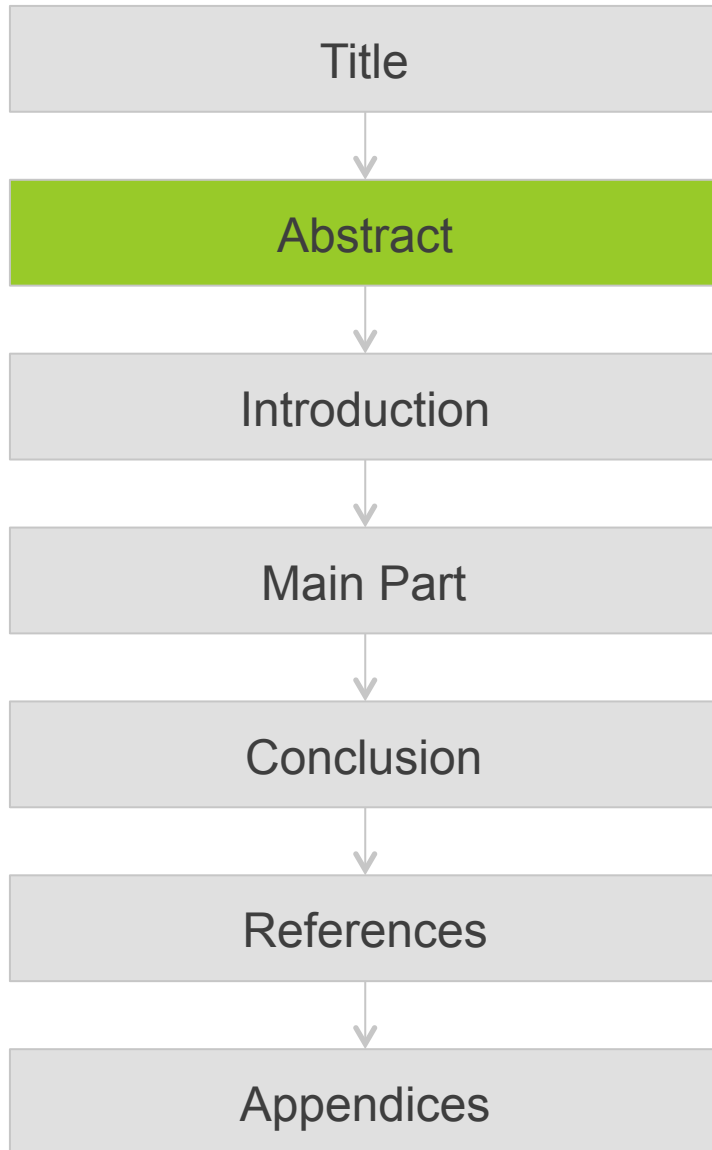
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Abstract

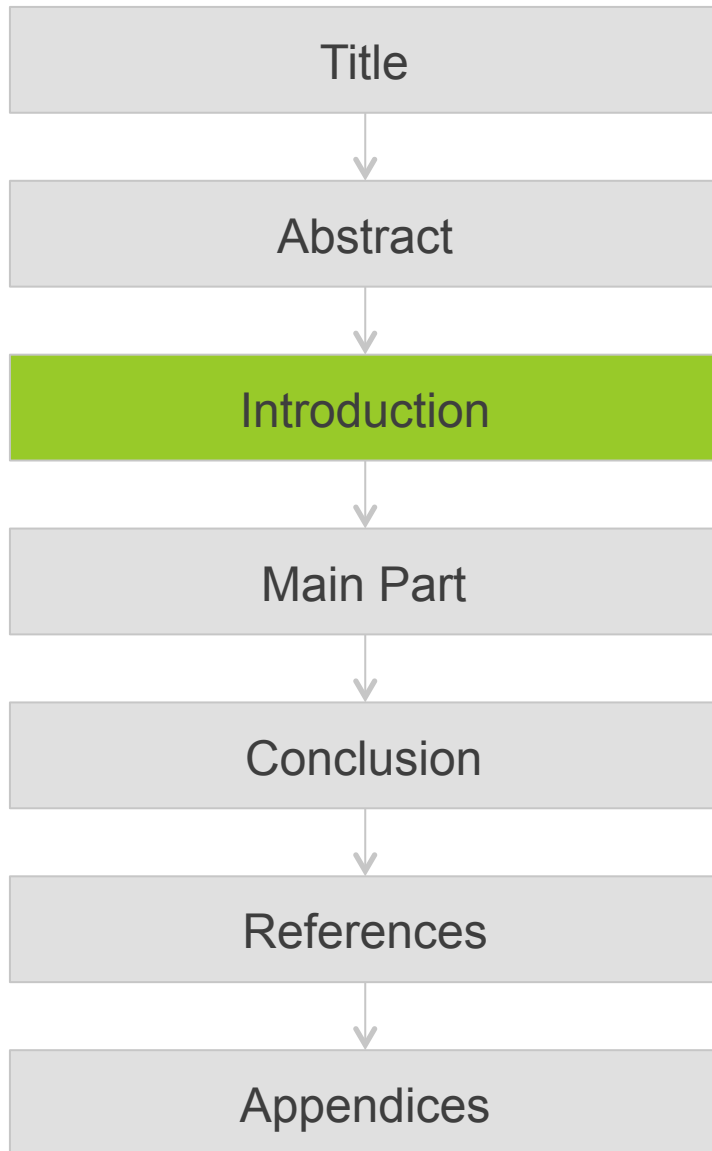
Preliminary results of a user study in the area of scholarly annotations suggest that users are very reluctant using automatic annotations for their personal knowledge creation processes. Thus, instead of offering an integrated solution, we suggest a solution that successively introduce less experienced users to automatic annotations by a mixed-initiative interaction approach. While annotating text manually, users receive a notification about a possible, automatic assistance. This notification is realized by three different coordination strategies for interruption. When users agree with this support, they can accept, reject or edit the recommendation. In turn the agent refines its recommendations.

Introduction

Active (close) reading of books or articles combines



- » Short (80–200 words) summary of your paper
- » Give context, method, and results
- » Try to integrate the most important keywords
- » An abstract is not an introduction
- » The abstract must make sense without the paper



- » Explains the problem domain
- » Defines the problem to solve
- » Explains the relevance of the problem or its solution
- » States the papers contribution
- » Distinguishes the contribution from related results

Writing an introduction

1. Give one paragraph of context: What is the problem domain.
2. *“State the problem before you describe the solution”*
Lamport (1978): What is the specific problem you consider, independent of its solution.
3. Explain why the problem is worthwhile solving. What is the solution good for?
4. State your contribution boldly! The paragraph in which the contribution is characterized is the one most thoroughly read.
5. Distinguish your results from previous results, but stay on a high level.
6. Explain how the remainder of the paper is structured.
7. Get to the point and keep it short.

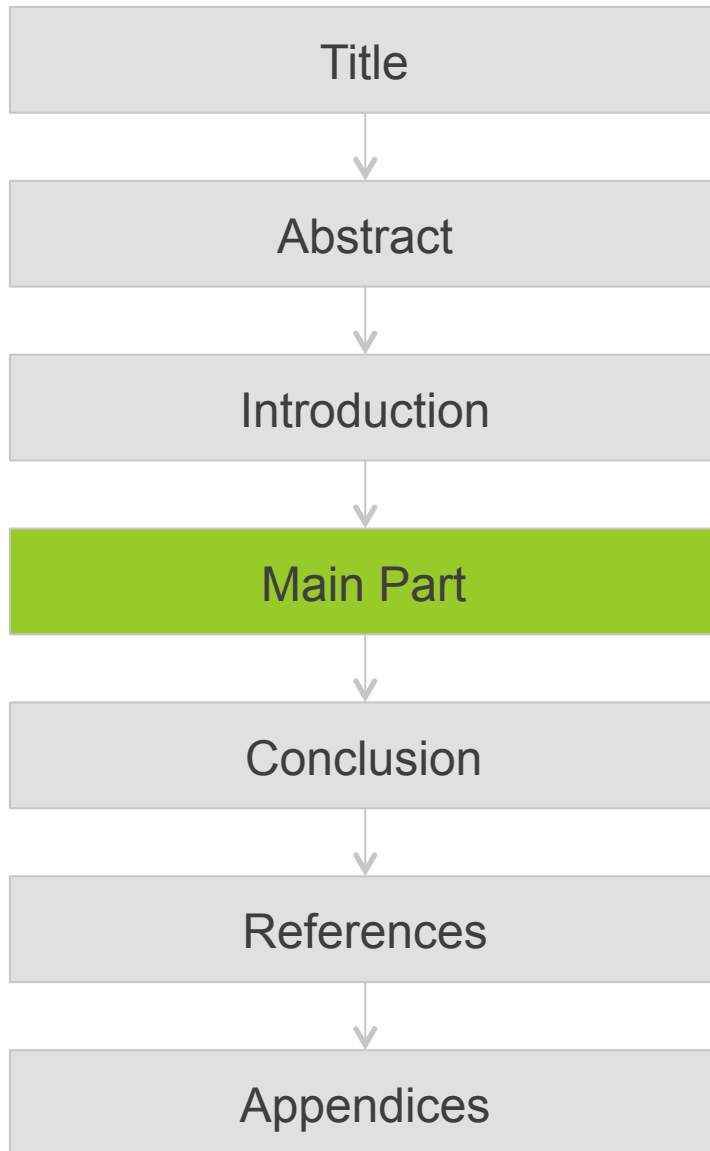
Remark

Actually, never write “In this paper, we show . . .”, “The purpose of this paper is . . .”, “The remainder of this paper is structures as follows.”

Problem statement

Whenever a theory appears to you as the only possible one, take this as a sign that you have neither understood the theory nor the problem which it was intended to solve. (Popper, 1972).

- » Your problem should be independent of its solution.
- » Your problem should be independent of the used technology.
- » Make sure that you can think of at least two different solutions to the problem that may use two different technologies.

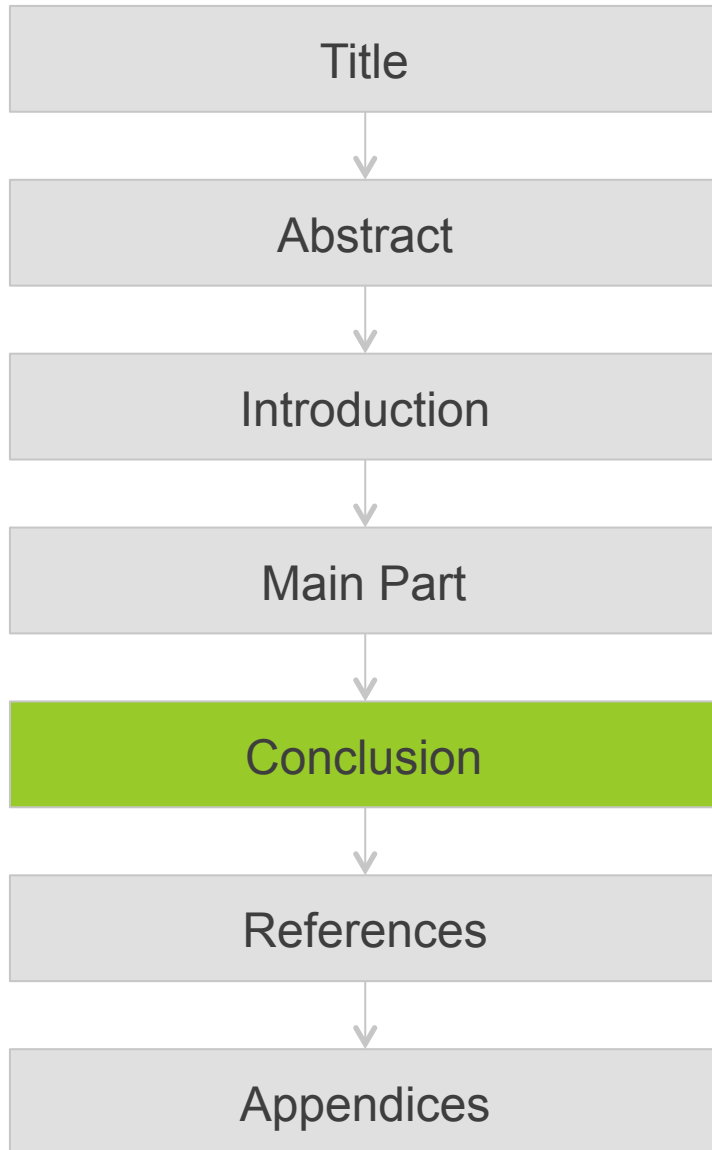


- » Explains the actual result or contribution
 - » Often this parts in differentiated into actual results presentation and discussion of results
 - » Result section: Only describing the results
 - » Discussion section: Critical comparison of results to related work

- » Gives evidence (proofs, experiments) to corroborate the result

- » Conveys sufficient information for others to reproduce the result

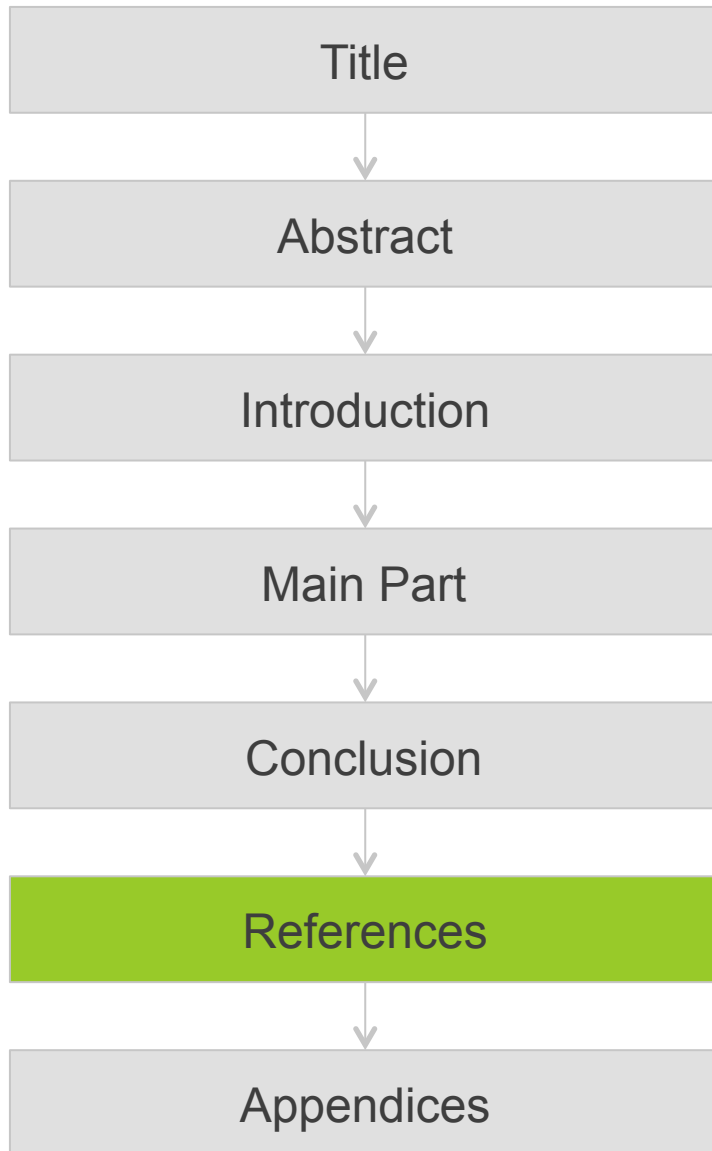
- » Conveys sufficient information for others to understand and appreciate the contribution



- » Gives a very short summary of the results and contributions
- » Critical evaluation of the results
- » How could the results be improved
- » Do not paraphrase the introduction or the abstract!

Writing a conclusion

- » A conclusion is neither an abstract nor an introduction.
- » The conclusion is read third, after abstract and introduction! Tell the reader something new.



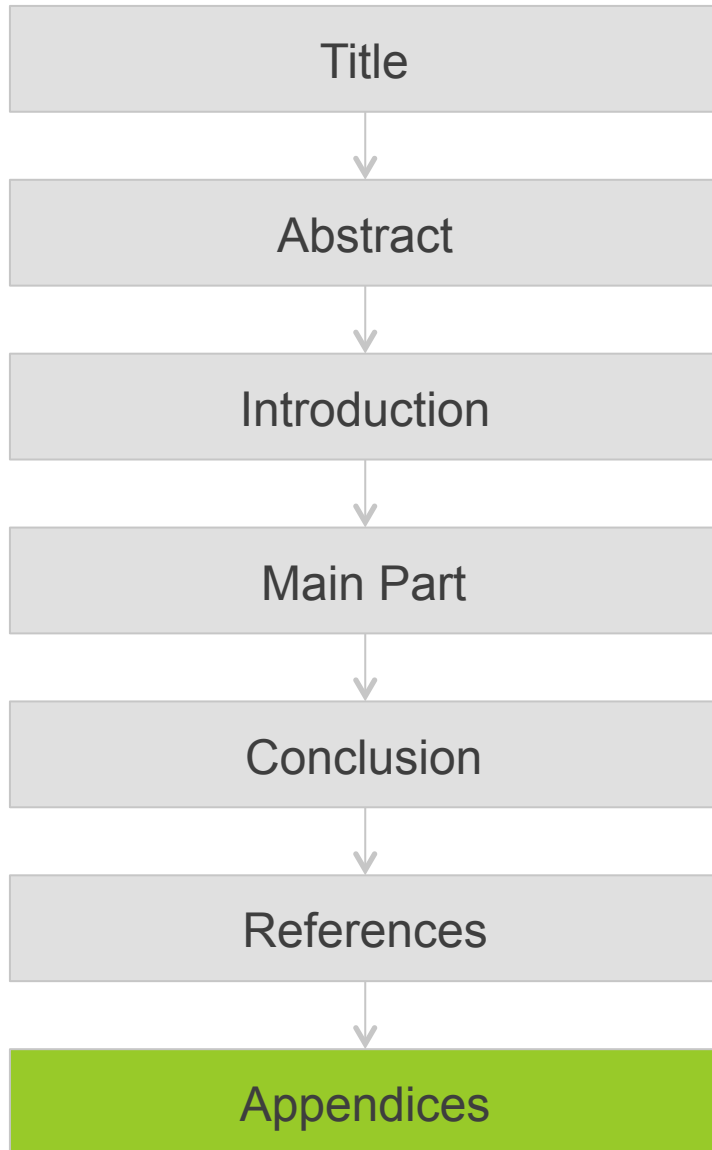
- » List all the references you used; the main body should refer to the references and explain why they are used.
- » Make sure you have some recent references
- » Only refer to original work
- » Refer to web sites, only if there are part of a data collection process

Style Guide Suggestions for your bibliography

- » Mostly given by the conference guidelines
- » Most relevant bibliographic style are from ACM or IEEE
 - *ACM = Association of Computing Machinery*
Sample citation [Phillips 2001] -- List References alphabetically, using the author's last name.
 - *IEEE = Institute of Electrical and Electronics Engineers*
Sample citations [1] or [8, 10] -- List References numerically, in the order that you have cited them.
- » Once you select a style, keep all of your references in the same style.
(easily done with LaTeX)

Finding source material

- » Libraries
- » Citeseer
- » Google Scholar
- » ACM Digital Library
- » IEEE Xplore
- » IEEE Computer Systems Digital Library
- » Springer Link
- » Science Direct
- » Wikipedia



- » The paper/report must be understandable without the appendices (please note: conference papers have often a fixed length)
- » Contains additional, detailed information useful (but not necessary) to understand the results
 - » Source code
 - » Technicalities
 - » Measurements
 - » Proofs
- » Use the best representatives in the main part!

Style matters

Main purpose is to inform your reader

- » Don't entertain him with bad writing
- » Don't entertain her with bad grammar
- » Don't entertain him with bad spelling
- » Don't rely on software (spelling and grammar checker)

Spelling and grammar checkers are still useful

Writing Science: The Story's the Thing



Science Careers From the journal *Science* Help Meetings & Events About

Career Magazine | My Science Career | Find A Job | Graduate Programs | Tools & Tips | Forum | For

Issues & Perspectives | Career Advice | The Job Market | Career Profiles | Life & Career | Divers

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Career Advice

Writing Science: The Story's the Thing

By Roberta Ness
April 06, 2007



- Email Article
- Email Editor
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BOOKMARK

You, a young researcher, stand at a crossroads. Behind you are hours of labor and reams of data you've collected. Before you is a blank page. For many scientists, that blank page is daunting. You probably never took a class in scientific writing. I certainly never did, and my 18 years of on-the-job experience only served to cultivate a dry, formulaic accounting of procedures and outcomes. Writing scientific articles was not something I looked forward to, even after doing it some 200 times.

Writing well comes from writing a lot, so get comfy with your computer.

http://sciencecareers.sciencemag.org/career_magazine/previous_issues/articles/2007_04_06/caredit.a0700047

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A short style guide

- » A sentence has a *subject*, a *verb* and almost always an *object*.
- » The important meaning is in the main clause and never in a subjunctive clause.
- » Be concise! Adjectives and adverbs are most of the time redundant.
- » Be specific! Not “In the literature . . . ” but “among others, Smith [4], Williams [7] and Taylor [15] . . . ”.
- » No weasels: Many people, very often, . . .
- » Cite to corroborate!

- » Use present tense active!
- » Use verbs instead of nouns: *assume* instead of make *assumption*!
- » Use proper verbs: *use* instead of *utilize*!
- » Avoid anthropomorphism.
- » Know your abbreviations: It suffices to write *TCP* instead of *TCP protocol*.
- » References are not words: “As Smith [1] shows” instead of “As [1] shows”
- » Formulas can only take the place of nouns. Symbols are not words.

- » Know comparatives: optimal cannot be improved.
- » Know the words: What is the difference between method and methodology?
- » Write positive: “Do” and not “Do not”
- » Use quotation marks (“ . . . ”) only for quotations, and never to scare, emphasize or other purposes.

- » Do not write orotundly or ostentatiously.
- » Avoid inventing new words, check if there exist one with your intended meaning.
- » If you define a new term, give three examples and three counter examples.

Know the exceptions to the rules.

Self-review method:

1. Record yourself reading your text aloud at normal speed
2. Listen to your recording

Edit what you can't read fluently!

Do you get the point of your sentence while listening to it?

Remember:

Your reader will not read a sentence twice

Your reader will not look up other pages

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Ethics and Code of Conduct

Ethics and Code of Conduct

- » The scientific community is built upon mutual trust
- » Most adhere to a code of conduct to ensure the systems working
- » Some do not play by the rules, sometimes with devastating consequences for the scientific community
- » Observe that science should be open, understandable, and reproducible. A debate does not do any harm, but misconduct does.

Scientific misconduct

- » Falsification: change your data
- » Fabrication: make up data
- » Plagiarism: using words or ideas without proper attribution

DON'T LIE, CHEAT, COPY.

Consequences of scientific misconduct

- » You fail with a reprimand
- » You finally and irrevocably fail the B.Sc. degree.
- » Your career is ruined.
- » Fines or jail time.
- » The first time we find you plagiarized, you fail (5,0). The second time the examination board will be asked fail your Bachelor's degree.

Satzung für allgemeine Prüfungsangelegenheiten §8 (3)

[. . .] In schwerwiegenden Fällen, die die Entziehung des angestrebten Hochschulgrades rechtfertigen würden, kann der Prüfungsausschuß bestimmen, dass die Gesamtprüfung endgültig nicht bestanden ist.

Falsification

Changing, amending, making up data

Data processing (smoothing, averaging) may be falsification, too.

Problem: distinguishing noise from signal? How to exclude wrong measurements (part of the regular data cleaning task)

Some means of data processing is accepted and appropriate.

- » State what you did and why you did it
- » Never compromise the integrity of the data
- » Be critical!
- » Be prepared to show and defend the raw data
- » Never force the data to match your expectation
- » Science is surprising

Fabrication

Making up data.

Inexcusable under any condition!

Even if you anticipate an experiments result, report actual measurements!

Plagiarism

The use of someone else's words or ideas without proper acknowledgements

All research is based on a foundation of scientific knowledge

Any time you write about this knowledge, you must cite the source

Exceptions: This knowledge is common

Criterion for common knowledge

“You find the same information undocumented in at least five sources” or “you think a person could easily find the information with general reference sources.” (Stolley and Brizee, 2010)

Rules for avoiding plagiarism

When you cite someone's ideas, they should be rewritten in your own words. The citation source must be provided.

Any time you quote exact words or phrases it must be clearly visible:

- » Use quotation marks “. . . ”
- » Use a visible typographic convention for longer text:
 - *This is a one paragraph quote.*
- » Longer quotations may look differently:
 - This is a multi-paragraph quote.*
 - This is the second paragraph.*

Always cite the source!

Mosaic Plagiarism

Changing a few words or slightly reworking sentences or paragraphs does not make a true paraphrase.

Self-plagiarism

Self-plagiarism is when you publish the same work and/or submit the same work for credit in two different classes

In case of published work, copyright infringement issues may take over:

- » Publishing involves transferring copyright to the publisher (assuming that it is not at the same time submitted elsewhere).
- » Once copyright is transferred, *your words* belong to the publisher.
- » Recycling of paragraphs or phrases from your own published work becomes copyright infringement.

Negligence is not an excuse

What if your misconduct happens accidentally?

What if you did not know better?

» **This is not a valid defense.**

It is your responsibility to track down related work and acknowledge when your idea has been published earlier by someone else.

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The reviewing process

Purpose of Reviewing

Quality Control:

- » Is the paper legible?
- » Are the results sound?
- » Are the results relevant (to the conference/journal)?
- » Are the results interesting?
- » Are the results original?

Participants

Author: Writes a manuscript and (re-)submits it for publication

Editor: Receives manuscript and assigns referees

Referee: Reads the paper and decides on originality, importance, soundness and presentation; usually experts in the field

Publisher: Provides web space or printing services, makes it available to the public

Remark

Some editors will also suggest improvement of the text, e.g. to enforce a consistent style in the publication.

Verdicts

Reject results are wrong, irrelevant, not original, published elsewhere

Accept after a second review results seem okay, paper is original, technical or textual presentation is not sound/okay

Accept after minor revisions only trivial mistakes

Accept publish as submitted

Review report

Reviewers remain anonymous

They have to submit a report to support their verdict

The report must explain why the reviewer decided as he did (appraisal, list of mistakes, list of improvements)

The reports will be made available to the author.

Resubmission

If the paper is not rejected the author may decide to resubmit or withdraw

Resubmission should always address all the criticism of the editor

Resubmission is accompanied with a letter to the editor

- » Explain how each criticism has been addressed in the revised version
- » The reviewer is usually right, even when he is wrong: you may be technically correct but misunderstood and this is a mistake
- » Especially, explain why you do not address some criticism in the resubmission

This process can have multiple cycles

Publication

When the paper has been accepted, it will usually be published

Write the next paper