

How to Write a Paper ... and Get It Published

Stefan Wagner

Part I: Writing



JORGE CHAM ©THE STANFORD DAILY

phd.stanford.edu/comics

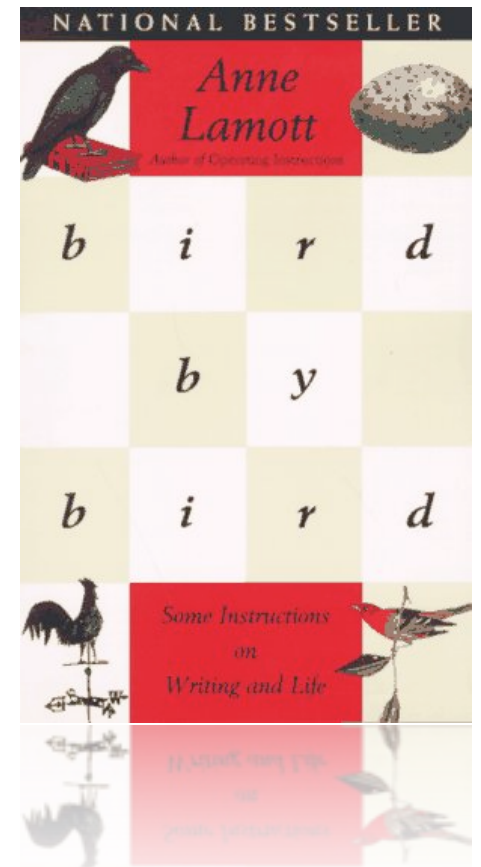
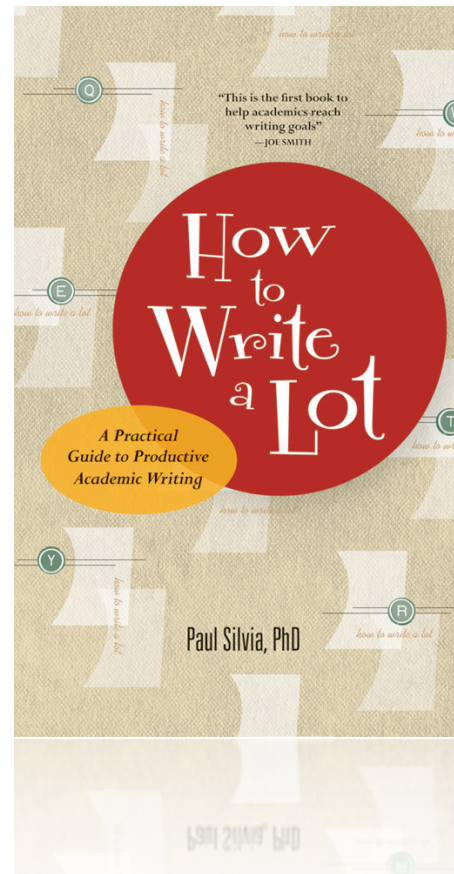
"Piled Higher and Deeper" by Jorge Cham
www.phdcomics.com

Why should I write?

- Detailed examination of a topic
- Check of one's own understanding of the topic
- Self-discussion and (kind of) validation
- You need to be precise!

Planning

- Start with outlining the story you want to convey
- State a clear research problem and contribution
- Read what others did
- Plan
 - Start early
 - Write every day
 - Set writing goals, priorities
 - Bird by bird
 - Shitty first drafts
- Collaborate
 - Quality assurance
 - Discussions





Reading

- Identify central publications
 - Cited by important authors
 - Number of citations
 - Surveys
- Read in order of publication
- Make notes
- Highlight important statements and references
- Organise them so you can find them
- Google Scholar, ACM Portal, IEEE Explore, ...
- Use a literature management tool
 - e.g. JabRef, BibDesk





JORGE CHAM ©THE STANFORD DAILY

phd.stanford.edu

"Piled Higher and Deeper" by Jorge Cham
www.phdcomics.com

Structure

- Self-contained
- High cohesion: 1 paper \leftrightarrow 1 contribution
- Not as standardised as in other disciplines
- Generic structure
 - Introduction
 - Related Work
 - (Background)
 - Specific content
 - Evaluation
 - (Discussion)
 - Related Work
 - Conclusions

Structure: Introduction

- Clear, distinct problem statement
- Why is the problem important?
- Have others noted that problem? -> Cite!
- Clear, few contributions
- Structure
 - Motivation
 - Problem
 - Contribution
 - (Results)
 - (Outline)
- Clearly show structure in the text!

Structure: Related Work

- Essential to know related research
- You never know every paper
- But the most important ones
- Content
 - Do not only summarise others work
 - Clear distinction from own work
- Location
 - Explicit section (or "Related work is cited where appropriate.")
 - After introduction or before conclusions

Structure: Evaluation

- Validation of your contribution
- Depends on problem and contribution
- Types
 - Proof-of-concept
 - Case study
 - Experiment
 - Field study
- Repeatable results (benchmarks, test environment)
- Ideally: web site with tools and data for download

Structure: Conclusions

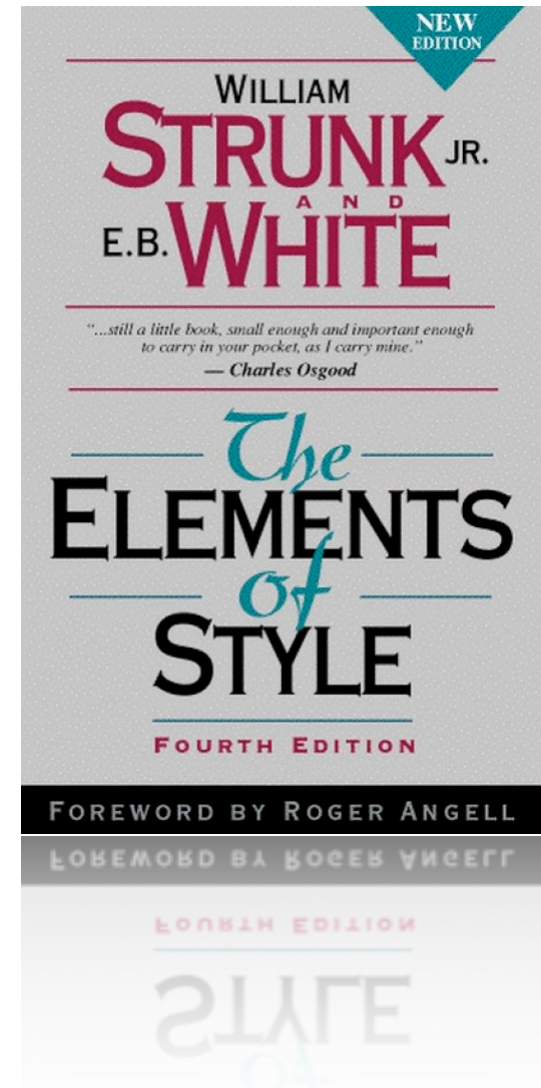
- Bridge to introduction
- Newly motivate
- Problem statement
- Description how the contribution solves the problem (partly)
- Major results
- Conclusions (can be speculative)
- Future work

The Reader

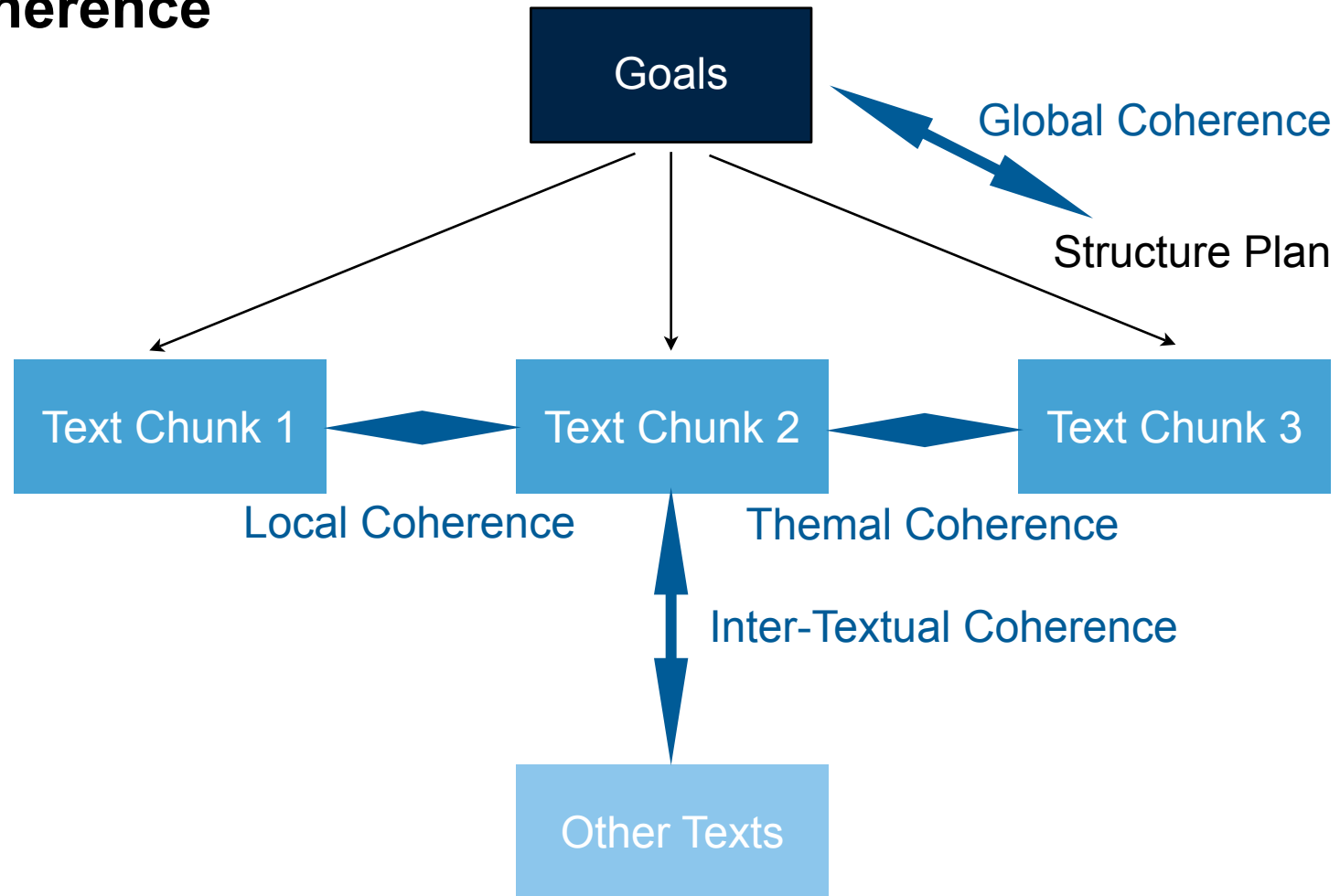
- The paper explains the research for someone who does not know it.
- Keep background of reader in mind
- Put yourself in the place of the reader
- Ask yourself questions
 - Is this interesting?
 - Is this comprehensible?
 - Is this relevant?
 - What questions the reader might have here?
- Keep your reader interested

Style

- Consistency
 - Central thread, leitmotif
 - Use standard terminology
- Easy to understand
 - Correct grammar and syntax
 - Choose good, simple words
 - Avoid passive and wordy phrases
 - Describe intuition for equations and formulas
 - Have a lot of examples
 - Use figures for illustration
- Scientific
 - Write defensively and factually
 - No storytelling
- Polish, polish, polish



Coherence

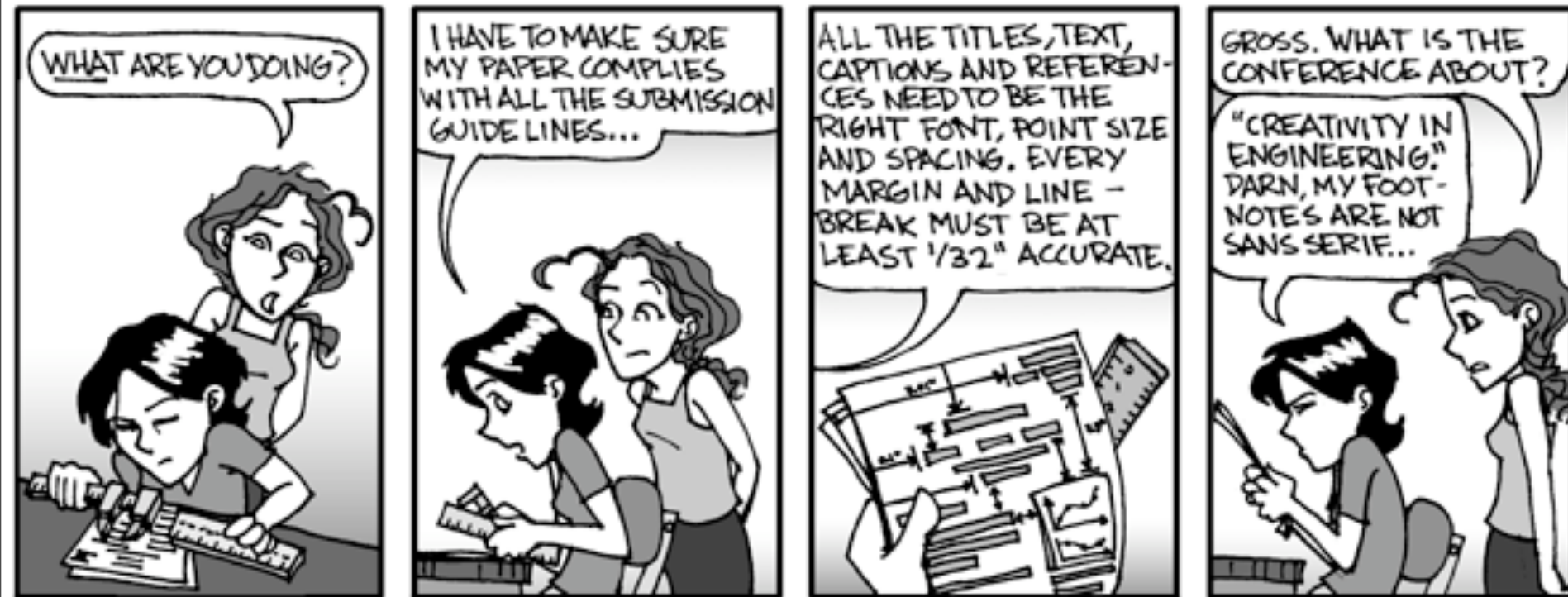


Based on: Agar, Michael and Hobbs, Jerry R.(2009) 'Interpreting discourse: Coherence and the analysis of ethnographic interviews', Discourse Processes, 5: 1, 1 — 32

Hedges and Boosters

- Use hedges and boosters rarely and with care
- Hedge: „it **could seem** useful to consider“
- Booster: „and **clearly** this is an important factor“

Part II: Publishing



phd.stanford.edu

"Piled Higher and Deeper" by Jorge Cham
www.phdcomics.com

Why should I publish?

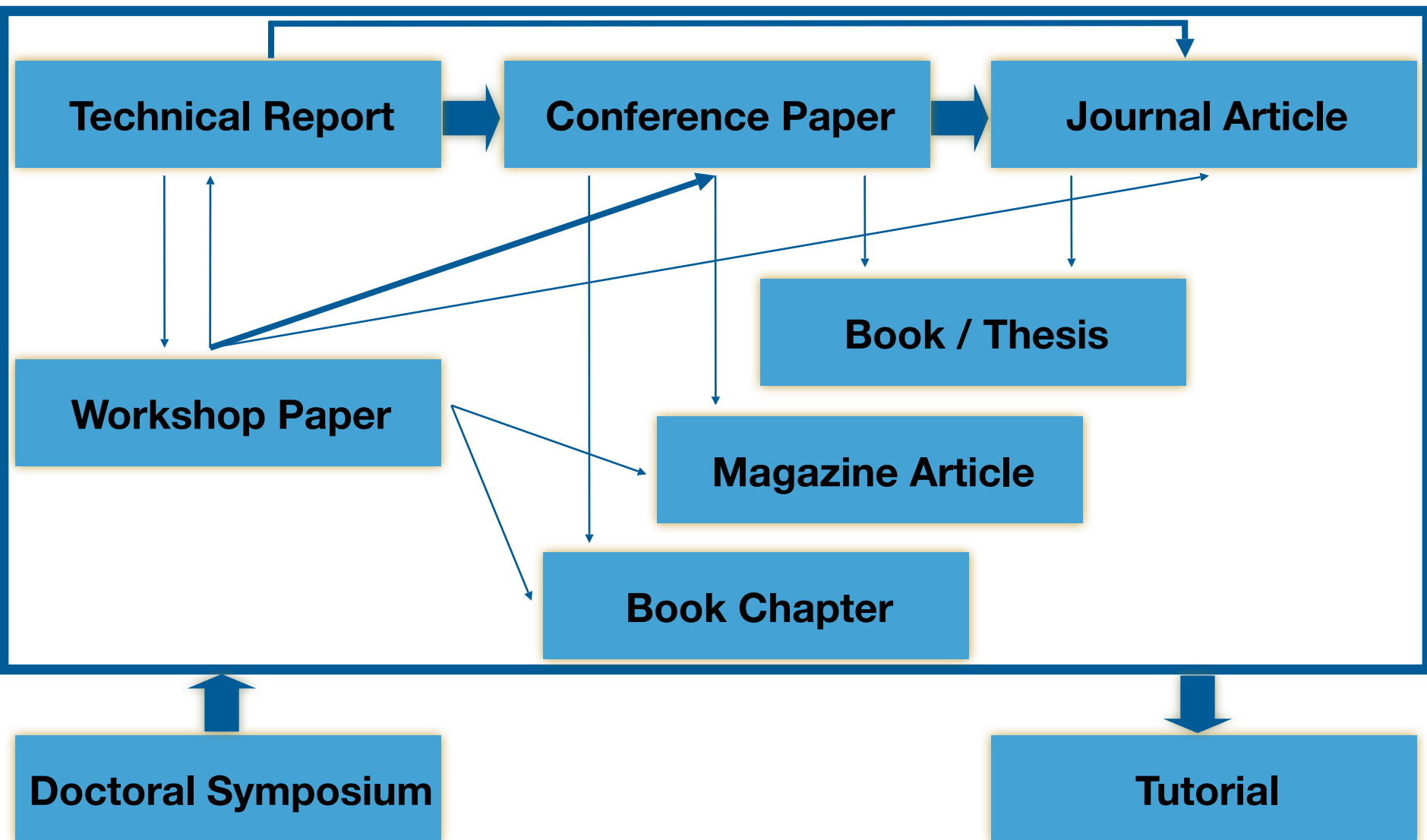
- Main task of a researcher
- Extending the scientific knowledge
- Performance record
 - Promotion
 - Grants
- Goals
 - Feedback from the community
 - Discussions on the topic
 - Documentation and archiving of important result
 - Dissemination in the community
 - Substantiation of thesis

Research is not finished until it is published!

Planning

- Already during research
- Where do I publish what?
 - Workshop vs. journal
 - Project report vs. significant, broad study
- Types of results
 - Empirical
 - Methodical
 - Theoretical
- Avoid LPU (least publishable unit)

The Research Results Life Cycle



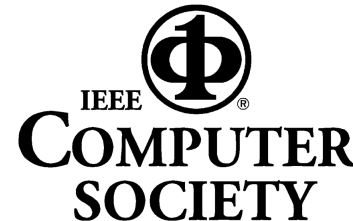
Where to Publish?

- Publisher

- ACM Press
- IEEE Computer Society
- Springer-Verlag (v.a. LNCS)
- Elsevier
- Wiley



Springer



ELSEVIER
ACADEMIC
PRESS

- Editorial Board/Organiser/Program Committee

- Well-known scientists
- Scientists cited by myself
- If applicable: practitioners
- Well known authors
- Low acceptance rate (rule of thumb <30%)



WILEY-
BLACKWELL

Write-Only Publications

- Never publish at dubious venues
- No rarely read and cited venues
- No unknown publishers
- No publishers without a digital library
- No local venues
- Local venues only
 - if there are interesting participants
 - to become known in a local community

Subjective Selection of Journals and Conferences

- Journals and Magazines
 - IEEE Transactions on Software Engineering (TSE)
 - ACM Transactions on Software Engineering and Methodology (TOSEM)
 - Journal of Systems and Software (JSS)
 - Information and Software Technology (IST)
 - Empirical Software Engineering (EMSE)
 - IEEE Software
- Conference proceedings
 - International Conference on Software Engineering (ICSE)
 - Foundations of Software Engineering (FSE)
 - Empirical Software Engineering and Measurement (ESEM)
 - International Symposium on Software Testing and Analysis (ISSTA)
 - International Conference on Software Maintenance (ICSM)
 - International Conference on Software Testing, Verif., and Valid. (ICST)

Publishing Process: Workshop/Conference

Call for Papers (CFP)

SE-World
mailing list

Submission

Distribution to PC Members

Reviewing

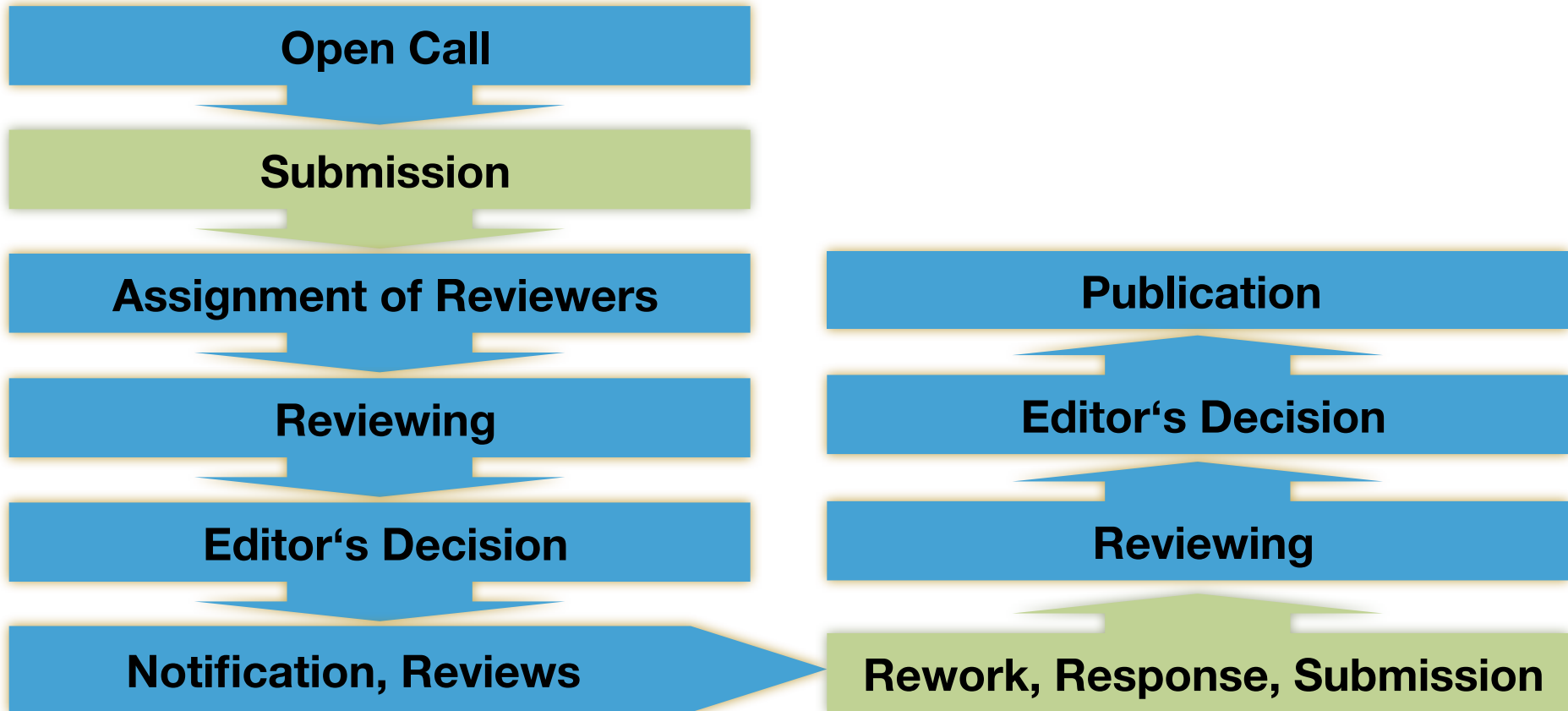
(Virtual) PC Meeting

Notification, Review

Publication

Rework, Resubmission

Publishing Process: Journal



Author List

THE AUTHOR LIST: GIVING CREDIT WHERE CREDIT IS DUE

The first author
Senior grad student on the project. Made the figures.

The third author
First year student who actually did the experiments, performed the analysis and wrote the whole paper. Thinks being third author is "fair".

The second-to-last author
Ambitious assistant professor or post-doc who instigated the paper.

Michaels, C., Lee, E. F., Sap, P. S., Nichols, S. T., Oliveira, L., Smith, B. S.

The second author
Grad student in the lab that has nothing to do with this project, but was included because he/she hung around the group meetings (usually for the food).

The middle authors
Author names nobody really reads. Reserved for undergrads and technical staff.

The last author
The head honcho. Hasn't even read the paper but, hey, he got the funding, and his famous name will get the paper accepted.

JORGE CHAM © 2005

www.phdcomics.com

"Piled Higher and Deeper" by Jorge Cham
www.phdcomics.com

Submission

- Usually via web-based submission system (EasyChair, CyberChair, ...)
- Journal paper needs cover letter
- Any author needs to know
- Respect page limits and layout guidelines
- Check editorial board or PC for related work
- Never submit to two venues at the same time!

Page Limits

Oh no, your paper exceeds the maximum number of pages allowed! What do you do??

TIPS AND TRICKS FOR KEEPING YOUR PAPER WITHIN THE PAGE LIMIT

Shrink font size to limits of human perception

If a minimum font sized is imposed, use a font that is 0.2pt smaller. They won't notice, will they?

Take out excessive details of your methodology

Let's face it, nobody really cares (and if they do, why help your competition?)

Border size Rule-of-thumb:

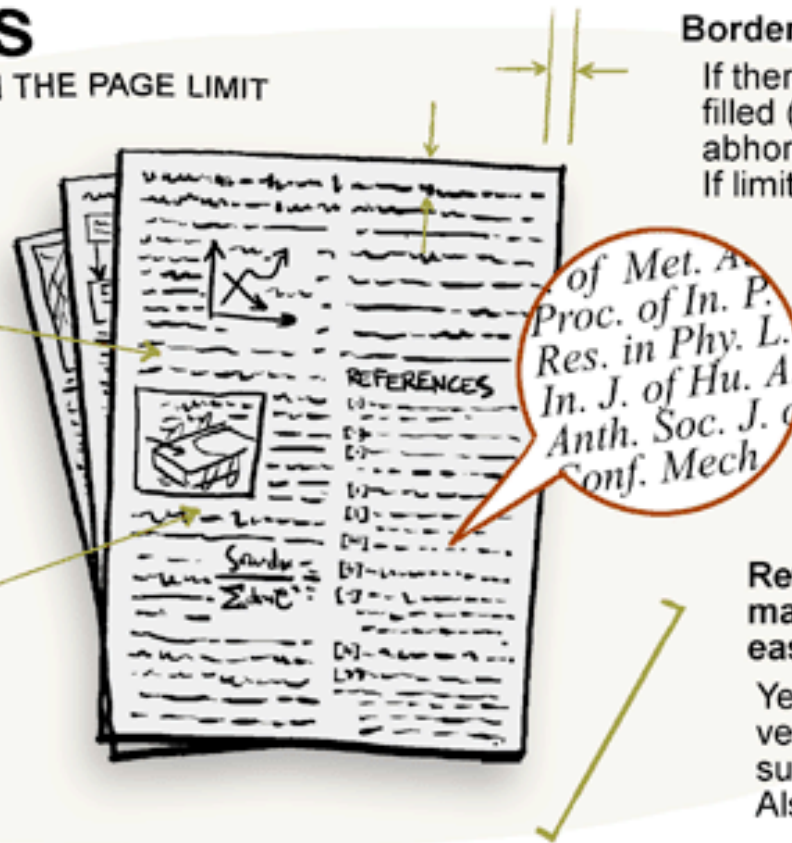
If there is paper exposed, it can be filled (Nature, and other journals, abhors a vacuous submission). If limit exists, apply 0.2pt rule.

Use Max. Abbrev. in Ref. Sec.

Spelling out the journal names will only make it easy for people to look up your competitors' papers.

Rewrite entire paper to make it more concise and easier to understand

Yeah right. Prodigious verbiage establishes your superior intelligence. Also, who has the time?



JORGE CHAM © 2007
WWW.PHDCOMICS.COM

"Piled Higher and Deeper" by Jorge Cham
www.phdcomics.com

Review

- Usage
 - Learn from it and improve
 - Any review has a value
 - Ignore tone of the review
- Questions
 - Where is the paper misleading?
 - Did I ignore important work?
 - Is this the right community?
 - Is the contribution enough for the venue?
 - Where can I extend the contribution?
 - What are my writing strength and weaknesses?
- If you are rejected: Improve and submit again!

Reviewer Comments

ADDRESSING REVIEWER COMMENTS

BAD REVIEWS ON YOUR PAPER? FOLLOW THESE GUIDELINES AND YOU MAY YET GET IT PAST THE EDITOR:

Reviewer comment:

"The method/device/paradigm the authors propose is clearly wrong."

How NOT to respond:

✗ "Yes, we know. We thought we could still get a paper out of it. Sorry."

Correct response:

✓ "The reviewer raises an interesting concern. However, as the focus of this work is exploratory and not performance-based, validation was not found to be of critical importance to the contribution of the paper."

Reviewer comment:

"The authors fail to reference the work of Smith et al., who solved the same problem 20 years ago."

How NOT to respond:

✗ "Huh. We didn't think anybody had read that. Actually, their solution is better than ours."

Correct response:

✓ "The reviewer raises an interesting concern. However, our work is based on completely different first principles (we use different variable names), and has a much more attractive graphical user interface."

Reviewer comment:

"This paper is poorly written and scientifically unsound. I do not recommend it for publication."

How NOT to respond:

✗ "You #&@*% reviewer! I know who you are! I'm gonna get you when it's my turn to review!"

Correct response:

✓ "The reviewer raises an interesting concern. However, we feel the reviewer did not fully comprehend the scope of the work, and misjudged the results based on incorrect assumptions."

www.phdcomics.com

JORGE CHAM © 2005

"Piled Higher and Deeper" by Jorge Cham
www.phdcomics.com

Summary

- As most things you learn writing by writing...
- Important:
 - Clear, substantial, and significant problem statement
 - Clear, distinct contribution
 - Leitmotif
 - Technically and linguistically correct
 - Suitable, high-quality conference/journal
- Do not be discouraged by rejection but learn!

Now go and publish!

Acknowledgement

Manfred Broy, Florian Deißeböck, Axel van Lamsweerde, Carlo Ghezzi, Marry Jean Harrold, Alex Wolf, Alexander Pretschner