

How to read mathematical writing

Dr. Melissa Huggan

Vancouver Island University

CMS Student Committee
Writing Workshop

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- 1 Understanding sources
- 2 Answer the “why”
- 3 Articles: parts and purpose
- 4 Reading Proofs: 101
- 5 Challenges and Solutions

Where did the article come from?

- Personal Communication
- arXiv
- HAL open science
- Google Scholar/MathScinet
- Journal
- Book Chapter or Book

Answer the “why”

Time is limited, use it wisely.

Decide **why** you are reading the article

- General Interest (10 minutes)
- Refereeing (possibly an outrageous amount of time)
- Using the results (several hours)
 - Building knowledge/tools
 - Referencing results for thesis

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Keep an easy-to-use filing system

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Time Commitment: 30 minutes to several of hours

General framework: Parts of a paper

- Title/Authors
- Abstract
- Introduction
- Results
- Conclusions/Open Problems (optional)
- References

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- Results – Should state and prove all results
- Conclusions/Open Problems (optional) – summary and possible extensions
- References – highlights research connections, credits past work

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- **Annotated Bibliography:** Keep a document and summarize the main points

Reading Proofs – be inquisitive!

“Don’t just read it; fight it! Ask your own questions, look for your own examples, discover your own proofs. Is the hypothesis necessary? Is the converse true? What happens in the classical special case? What about the degenerate cases? Where does the proof use the hypothesis?”

Paul Halmos

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- Ask questions. Have a working group.

Examples

Improvement Tactics

- Read regularly
- Give yourself the time/space to absorb the material
- Join/create a working group with peers
- Learn from others' styles (Adopt/adapt what you like!)
- Hone your skills!

Thank you!

Melissa Huggan, PhD
Professor
Melissa.Huggan@viu.ca

