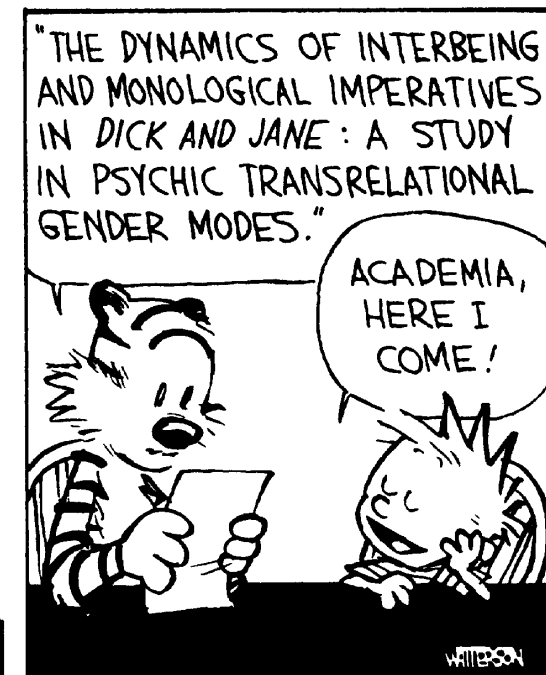
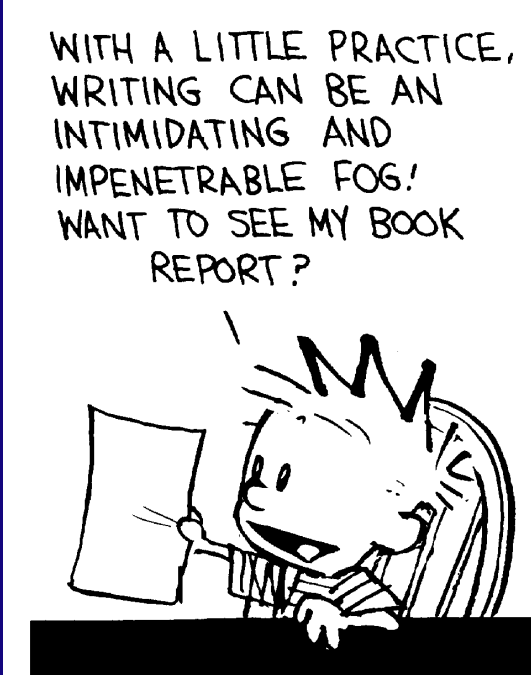
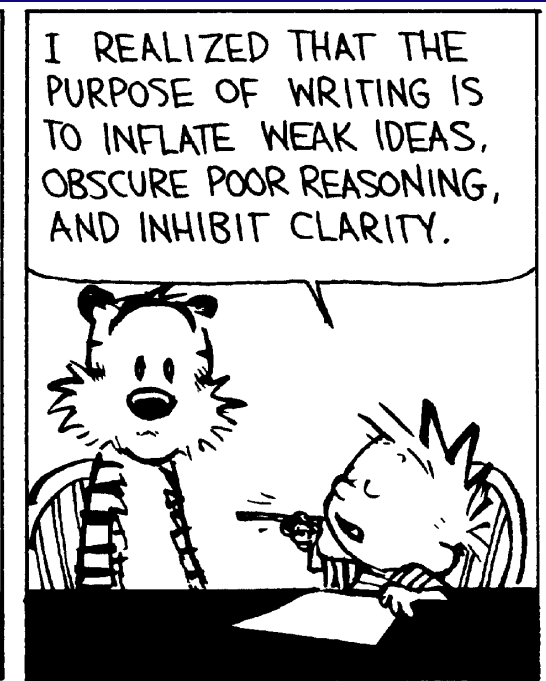
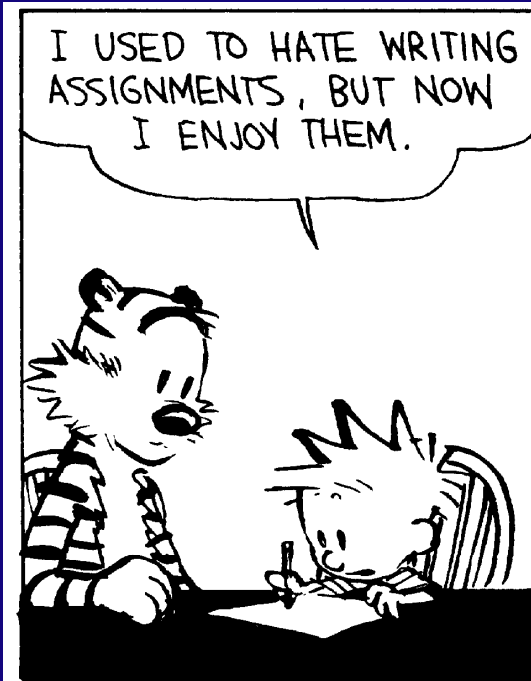


Effective Graduate Writing

Dr. Paul Bologna
Biology and
Molecular Biology



What is Good Writing

- Concise
- Addresses the Question
- Logical Foundation = = Organized Arguments
- Grammar, Spelling, Citations & Quotations

Definition: Concise*

- adjective
- expressing or covering much in few words; **brief in form but comprehensive in scope**; succinct; terse.
- Why? Minimizes the BS factor.
- Why? Gets to the point!
- Essays: Restating the question?
- *<http://dictionary.reference.com/browse/concise>

Addressing the Question (Topic)

- Is your writing clearly understood?
- Are supporting arguments present?
- Have you actually addressed what was in the question or did you **go off on a tangent**?
 - Checklist of points to be made

Organized Arguments

- Pre-Writing Requirement: Regardless of Format (e.g., exam, essay, thesis)
- Points to be made
- Order of Explanation (logic of the argument)
- Supporting Evidence

Simple Writing made Simple

- Write down the 'facts'
- Organize the ideas
- Assess the flow of ideas and supporting evidence: edit as needed
- Develop an outline
- Begin writing, follow your outline

Graduate Writing Expectations

- Examinations
- Essays, Term Papers
- Culminating Experiences
 - Literature Review, Lesson Plans/Curriculum Development, Case Studies, Thesis

Examinations

- Graduate Courses look for your ability to **communicate an idea in a thorough manner.**
- Essays on Exams demonstrate your grasp of the material as well as the **depth of your understanding** (memorization of facts vs. deep learning)
- Answer the questions, but with depth, in a limited time frame!

Essays and Term Papers

- Longer Content writing
- Organization of ideas
- Thoroughness of background research

Essay Examples

- **Paper Summary**
 - Demonstrate Basic Understanding
- **Compare-Contrast Papers**
 - Assessing multiple angles of research, arguments with different supporting evidence, your interpretation
- **Synthesis Papers and Term Papers**
 - Deep understanding of the complexity of the presented works

Culminating Writing: Literature Review

- **Assessment** of the current and historical information on a topic.
- **History** of an idea or research development
- Your **interpretation** of the topic.
- Pro and Con arguments and supporting evidence.

- Why? Deep learning (synthesis) of the topic

Culminating Writing: Curriculum Development

- **Assessment** of the current and historical information on subject matter.
- **History** of the pedagogy.
- Finding a **better way to teach** the material.
- Pro and Con arguments and supporting evidence.

- Why? Improve knowledge, understanding, and application of the information for **students**.

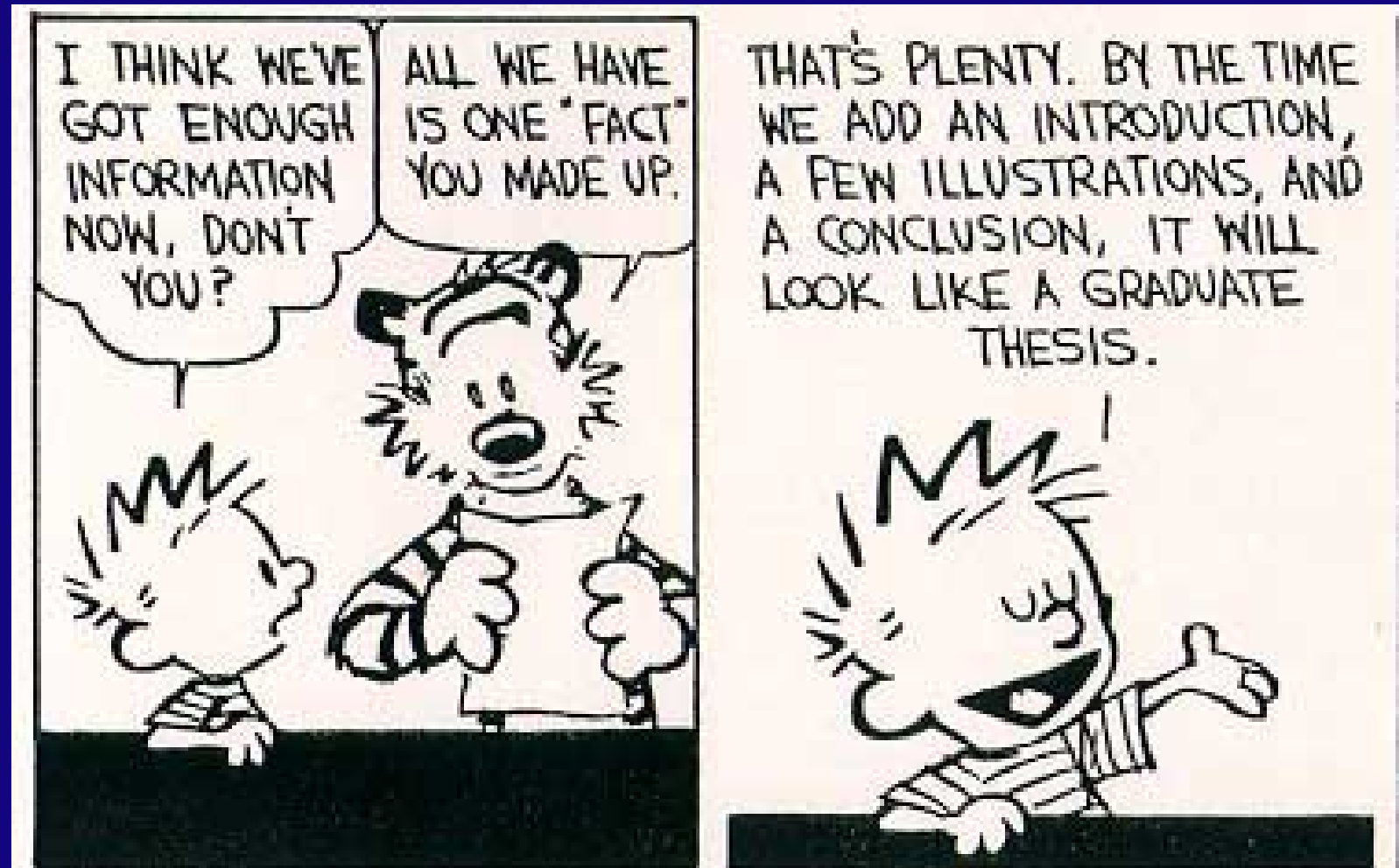
Culminating Writing: Case Studies

- **Assessment** of the current interpretations and historical precedence. Who shaped the argument and why?
- Your **interpretation** of the topic.
- How might it **be applied** to a new case or under different circumstances (technology!)
- Why? Synthesis of the topic

Culminating Writing: Thesis

- **Assessment** of the current and historical information on a topic.
- Research development leading to **NEW** ideas, interpretation, research, and data, to answer a question.
- Why? Contribute to the body of research and literature on the topic.

What is a Thesis?



A Thesis is NOT

- **Summarization of others' work**
- **Just a long term-paper**
- **Something to be completed in a weekend**

A Thesis is a Process

- **Gather Background Information**
- **Conduct the Project**
- **Write and Defend the Research**

Thesis Development

- **Funded** Project Theses
 - Faculty funded project
 - Limited Student Creativity (Faculty ‘gives’ you your project)
 - Common at Large Research Institutions, but growing at MSU
- **Independently Developed** Theses
 - Ask yourself “what am I interested in”?
 - Find Faculty to help direct your research

Defining the Research Topic

- What are your interests?
- What are your mentors interests?
- What are your **strengths**?

- What are the capabilities of your mentor and the University? (**'do-ability'** of the project)

Developing a Thesis Proposal

1. Develop project **Goals and Objectives**
2. Review Objectives with your mentor
3. Develop a thesis committee
4. Review thesis ideas and Objectives with the committee
5. Write your proposal
6. Get committee approval on the proposal

Why is having a proposal important?

- **Guideline for research**
- **Define objectives which can be accomplished**
- **Committee can't keep asking for 'more'**
 - (they agreed on it, you can stay focused)
- **'HALF' THE THESIS IS ESSENTIALLY WRITTEN!**

Thesis Proposal

- **Introduction based on literature research**
- **Defined Objectives**
- **Defined Hypotheses to test**
- **Methods to complete the Objective**
- **Statistical Guideline to analyze the Data**

- **Your Mentor and Committee will provide you guidance on what they expect in the proposal**

Research Time

- **The next step is to conduct the research**
- **Involve your committee**
 - **Project Assistance**
 - **Data Review, Analysis, and Interpretation**
 - **Research Problems**

Writing the Thesis

- Follow acceptable writing guidelines defined by your Mentor and Committee
- Sciences generally do not follow the APA Writing Styles
- In Biology, we use the CBE Style (Council of Biological Editors)
- Find out what is applicable for your **discipline** and follow it!

Generic Thesis Organization

- **Introduction**
- **Methodology**
- **Results**
- **Discussion**
- **Conclusion**

Introduction

Should be almost done in association with the thesis proposal

- Introduction to your Research Topic
- Broad in scope
- Lots of published literature to provide context
- Should explain why **Your research** is necessary (data gap)

Methods

- Explain what you did.
- Should be clear enough for another researcher to replicate your work.
 - Exact details (concentration, amount, time, number of samples, etc...)
- Don't forget to explain you data/statistical analyses! (experimental design)

Results

- **Statement of Facts**
- **Do not explain what it means (that is for the discussion)**
- **Do explain problems (one sample was lost, the dog stole it and I never saw it again), surveys filled out incorrectly, etc...**

Results

- **Visual presentation**
 - **Figures / Graphs – Simple Relationships**
 - **Tables – More or ‘More Complex’ Data**
 - **Images showing Results (e.g., cancer vs. normal cells)**

Results

- **Incorporate ALL your Data and Results**, Significant or Not. For publication you can eliminate what is not useful, but you did the work, let your committee and college know!
- In some cases you may incorporate the data/results as an appendix to your thesis. This is especially useful for displaying survey questions etc..

Discussion

- This is where you explain and interpret your results.
- Expand on the importance of YOUR Data!
- You need to put your results in the context of other published research = **Compare and Contrast, Synthesis**

Discussion

- **This is the ‘meat’ of the thesis or paper.**
- **If a discussion is poorly written, it won’t be published**
 - **Poor Grammar or Writing Style**
 - **Repetition**
 - **Insufficient Literature Review (know the research topic)**
 - **Incorrect Interpretation of the results**

The Writing Process

- **Think = Idea generation, literature review**
- **Organize = Outline and group ideas**
- **Draft = put something on paper**
- **Re-Think = evaluate what you write**
- **Re-Organize = does flow exist, eliminate repetition**
- **Edit = fix grammar and sentence structure**
- **Re-Write**
- **Repeat**

Pitfalls in the Process

- **No defined research plan (proposal is the best idea)**
- **Waiting to the end to write**
- **Lack of Committee Communication = keep us informed, especially if you are having trouble!!!**

Plagiarism

Many people think of plagiarism as copying another's work, or borrowing someone else's original ideas. But terms like "copying" and "borrowing" can disguise the seriousness of the offense:

- According to the Merriam-Webster Online Dictionary, to "plagiarize" means
 - to steal and pass off (the ideas or words of another) as one's own
 - to use (another's production) without crediting the source
 - to commit literary theft
 - to present as new and original an idea or product derived from an existing source.
- In other words, plagiarism is an act of fraud. It involves both stealing someone else's work and lying about it afterward.

PLAGIARISM

- **DON'T DO IT!!!!!!!**
- **If you did not write every last word independently, it is plagiarism!**
- **Rewriting someone else's work is plagiarism!**

Questions?

