

# Document Design

- The layout of words and graphics determines the look of a document.
  - grid pattern, white space, etc.
  - margins, justification, indentation, spacing, font
  - headings, paragraph length, bullets, etc.
- Goal is to invite a diversity of readers in, guide them through the material, and help them understand and later remember the information.

# Section titles and sub-titles

- “Results”, “Analysis”, “Discussion”
  - no information
- Descriptive title sections
  - Invites readers in
  - Tells readers where information is located
  - Provides readers an obvious outline
- Parallel titles when possible

# Parallel arguments

- Always keep orders of arguments the same
- Try to keep flow parallel
  - If two competing ideas are presented in Section 4.1 and 4.2, then try to have paragraphs match

# Section headings should be descriptive and parallel

Non-Parallel  
Non-Descriptive

Parallel  
Descriptive

Introduction  
Background  
Marx Generators  
Line Pulse  
Beam Generation  
Transporting Beam  
Pellets  
Results  
Conclusions

Introduction  
  
Past Designs for Particle Beam Fusion  
  
New Design for Particle Beam Fusion  
Charging Marx Generators  
Forming Line Pulse  
Generating Particle Beam  
Transporting Particle Beam  
Irradiating Deuterium-Tritium Pellets  
  
Results of New Design  
  
Conclusions and Recommendations

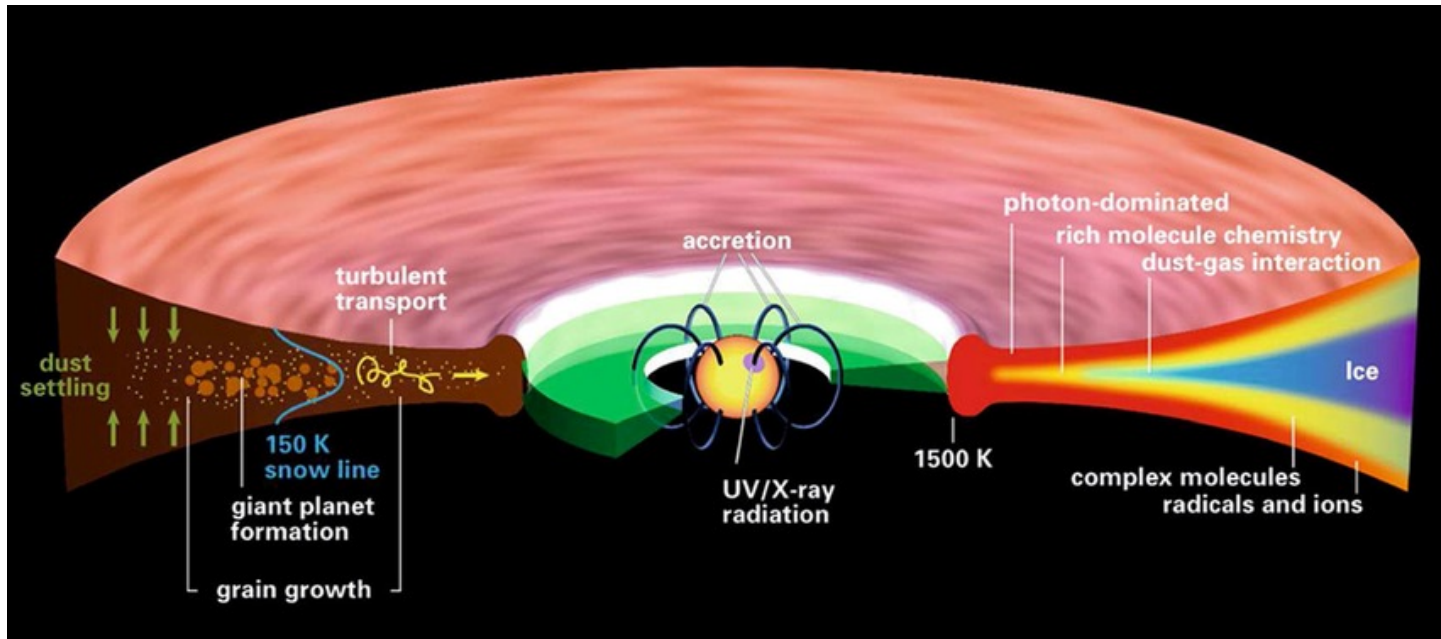
**Vague section headings hide meaning**

# Visuals: **Show, don't tell!**

- helps reader interpret, remember complex information in simplified form
- can show:
  - how analysis looks or works
  - how analysis or data are organized or actions are performed
  - how elements or data are related
- visuals should be audience-centered
  - keep as simple as possible
  - include explanatory labels, title, caption
  - use visuals to enhance your story
  - Should stand on own: can I see story without reading anything?
- should use fewest number of plots that tell the story

# Visuals

- Most readers look at visual first
  - Some exceptions: look at visuals only if logic or results are surprising
- **Visuals need to tell the story**
  - Story is told in text and in visuals
- Not just plots, also illustrations
- Spend time on the plots! Make them **clean** and **easy to understand**!



Henning & Semenov 2013

# Guidelines for Figures

- Figures
  - place independent variable on abscissa (x-axis) and dependent variable on ordinate (y-axis)
  - ensure figure points, lines, axes, scales are **easy to interpret**
  - No “confusograms”
  - legend/caption should be descriptive of content
  - Parallel outline (one in text form, one in Figure form)
- Not sure if your plot is easy to understand?
  - Show your friend and do not give them any context!
  - Figure should explain itself, caption is for details
- Outlining: often tell the story through figures
  - Results/analysis: describes the analysis that goes into the figures
  - Discussion: interprets the figures

# Guidelines for Tables, Equations

- Tables
  - keep table structure simple: **how will people use your table?**
  - place familiar content on left and new important information towards right
  - design table title to identify specific topic
  - label dependent variables in column headings and independent variables in row headings
  - **Long data catalogs? check with co-authors to make sure they can use it!**
- Equations
  - treat equations and formulas as part of text
  - define variables
  - state assumptions
  - Keep as simple as possible
  - For most papers, leave derivations in the Appendix



# Paragraphing

- Different types of paragraphs
  - Introductory: sets stage
  - Supporting: traditional stand-alone content
    - Topic is clear
    - Unity of sentences in developing topic
    - Coherence of sentences is establishing conclusion
  - Transitional: brief; provide logical continuity
  - Concluding: wrap up
- Paragraphs should flow together
  - Look for opportunities for parallel structures
- Each paragraph should FOCUS on a single topic

In reverse outlining of the “good” paper you chose (homework), look back to see how the authors have chosen to structure their paragraphs

# Paragraphing

## Shape information within paragraphs

- Topic sentence (optional) provides overview
- Supporting sentences expand, clarify, provide details
- Maintain consistent point of view
- Maintain consistent verb tense
  - Usually present tense for work done in paper
  - Past tense for actions at a specific time in past (“we observed”)
  - Some differences based on author preferences (but stay consistent)
- Repeat key terms:
  - Continuity
  - links ideas
- Use links within sentences, transitions between sentences to provide logical flow:
  - therefore, thus, consequently, as a result; however, nevertheless, alternatively, unfortunately, instead, in contrast; in addition; in particular, finally, furthermore, moreover, for example, currently.... [never use “Besides” without a noun, ie, “Besides this data”]
- Each sentence: what is it about and how does it move the argument along?

# Use Reader-centered Strategies

- Establish relevance
  - get the reader's attention
  - speak to reader's goals and interests
  - explain facts from reader's perspective
  - use examples and analogies as appropriate
- Make information easy to find
  - state main points up front
  - Overview
  - order information by importance
  - use clear headings, bulleted lists, etc., effectively
  - pay attention to details of tables, figures, captions, etc.
  - eliminate irrelevant information

Sentences longer than 35 words, paragraphs longer than 150 words need surgery.

# Tasks during Revision

- reorganize information
  - often move entire paragraphs!
- deepen or extend analysis
- narrow focus, scope
- add data and supporting information
- adjust details of argument
- eliminate repetition and/or restating the obvious
- allocate space to highlight or diminish points

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