

Technical Writing: Structure and Content

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Structure

This lecture contains a brief discussion of the structure of a “typical” piece of technical writing. Concepts will be presented in summary and detailed discussions of the content of each section can be found in the accompanying short lectures.

There is no absolutely correct structure, as the specifics often depend on what you are presenting. However:

*Always follow the specific
template provided for
your task or assignment*

Structure

There are certain sections or features which are expected from a technical report and as a result you should include.

Each of these sections serves a different purpose and the content of each section follows an expected pattern.

These lectures will use several examples common in engineering to illustrate the requirements and some of the variations necessary for the presentation of different types of material.

There are many other variations of the structure but they all share common features.

Structure

Experimental

Abstract

1. Introduction
2. Background
3. Experimental Design
4. Results
5. Discussion
6. Conclusions

References

Appendices

Design and Build

Abstract

1. Introduction
2. Background & Theory
3. Design
4. Testing
5. Evaluation
6. Conclusions

References

Appendices

Simulation

Abstract

1. Introduction
2. Theory
3. Simulation setup
4. Results
5. Discussion
6. Conclusions

References

Appendices

Brief overview of the sections and their relationships

Abstract

- Summarises the whole report at an abstract level
- No detail but might contain one or two key facts
- Contains context, results and conclusion information
- Acts as an advert for the report
- Short!

Introduction

- Provides context for your work by outlining the relevant technical field with references to previous key contributions
- Identify where your contribution fits by indicating a gap or scope for improvement
- Presents the aim of your work
- States your objectives or outlines the structure of the thesis with sufficient detail
- Should not state any results or conclusions

Brief overview of the sections and their relationships

Background and/or Theory

- Might be multiple sections depending on the best way to compartmentalise the information you need to present
- Reviews the field in detail
- Contains all information necessary to understand the work presented in the report
- Also contains references to all material necessary to understand the information presented in this section

Experimental Design/Design/Simulation setup

- Again, might be multiple sections
- Present key ideas for measurement/build/simulation
- Describe experimental setup, equipment used, capabilities and source
- Detail methods for measurement, ranges, parameters, error sources
 - **OR**, design requirements, features, constraints
 - **OR**, simulation methods, problem space and model, relationship with physical system, constraints
- Detail the methods of analysis, what these will show about your measurement/device/simulation

Brief overview of the sections and their relationships

Results

- Present the results/data obtained from your work.
- Present the data in sufficient detail for the reader to be able to see the contributions you have made.
- Extra results should be placed in an Appendix
- Describe the features of the results, highlighting in particular those that you wish to draw the readers attention towards

Discussion/Evaluation

- The purpose of this section is to **ANALYSE**.
- Present your analysis of your results, in relation to the background material, including for example calculations which show performance (where you would have presented performance indicators in your background and how to calculate them in your method).
- Discuss the outcome of your analysis in terms of the objectives of your work
- Draw conclusions about whether the analysis of your results demonstrates that the objectives have been achieved or the requirements have been met
- Make **QUANTITATIVE** statements about this last point

Brief overview of the sections and their relationships

Conclusions

- Note: this does not mean **END**!
- Summarise all of the conclusions of your analysis
- Relate them to the contextual statements made in your introduction
- **AND** state how well you have achieved the objectives or met the requirements
- State whether or not you have achieved the aim and what the value of your work has been
- ***Recommendations/Future work***
- Optional additional section which lays out your suggestions for how to take the work forward, either to better achieve the aim or towards new areas/applications

References

- A complete list of all the material that you refer to in your document
- Formatted in certain ways.

Brief overview of the sections and their relationships

Appendices

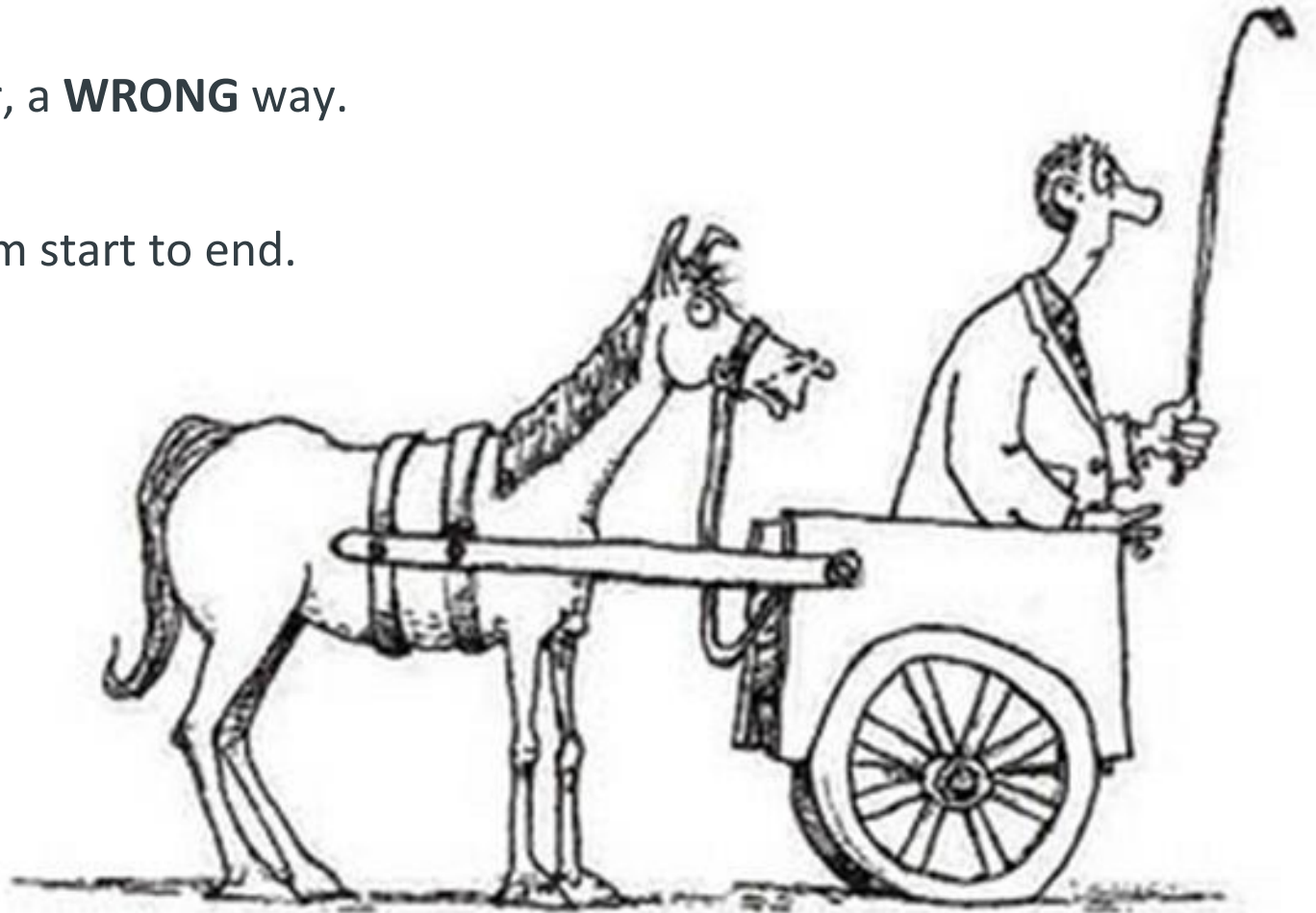
- Contain additional relevant material of yours that you refer to in your document
 - Circuit diagrams
 - Code listings
 - Technical drawings
 - Relevant datasheets
 - Further mathematical working or explanation of a derivation
 - Additional graphs, results and data
- Are like internal references

Order of writing

There is no correct way to write a report/essay/dissertation.

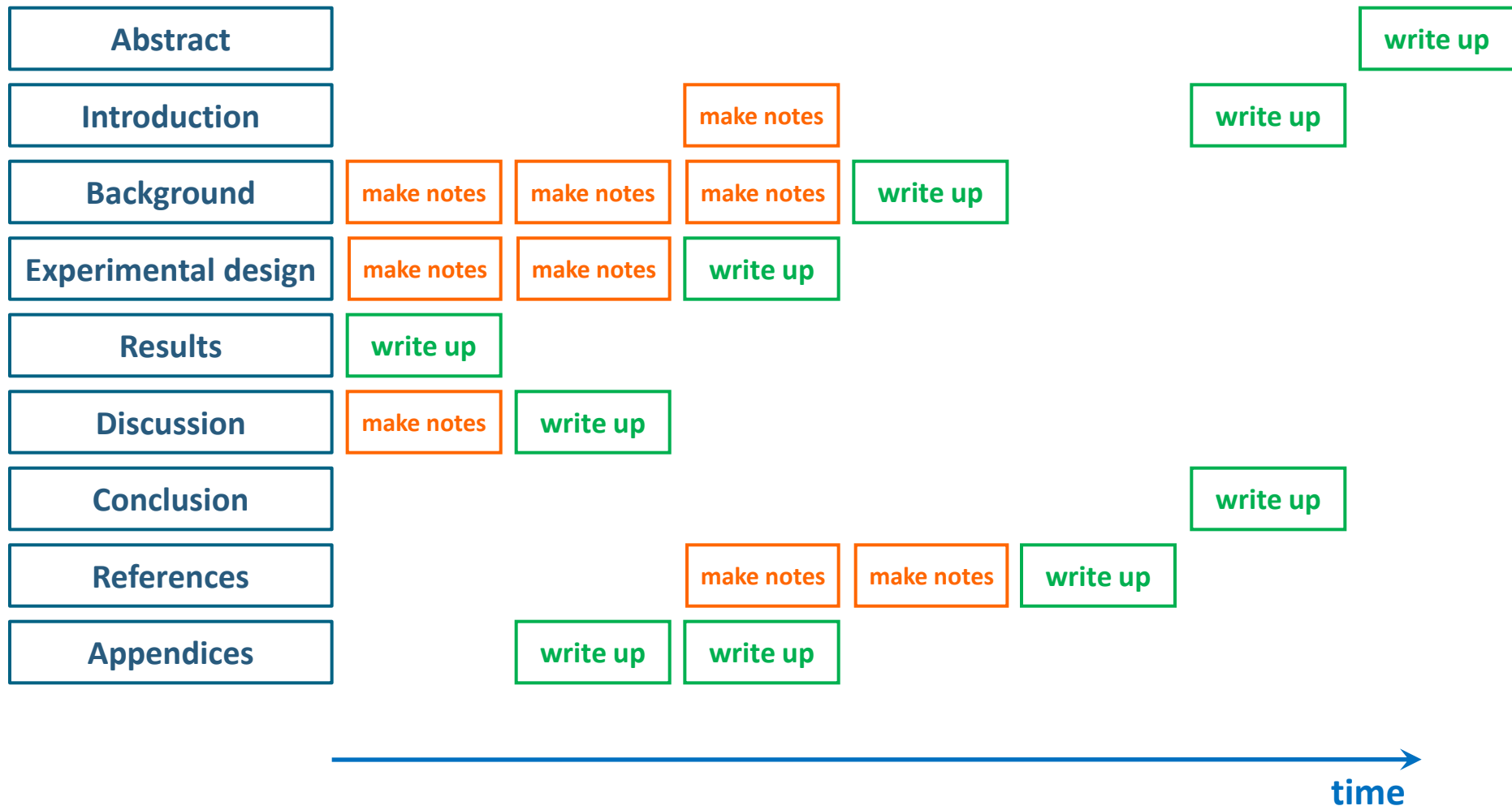
There is, however, a **WRONG** way.

Do **NOT** write from start to end.



Order of writing

This is one suggested approach:



What now

The follow on lectures provide more detail about the content of each section.

There is a separate lecture on format and style questions.