



Academic writing

COMP30027 Machine Learning

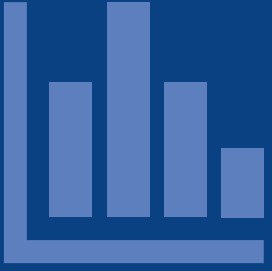
Ariana Henderson
Academic Skills





Structure

Section	Which includes...
Introduction	
Literature review	
Method	
Results	
Discussion/Critical analysis	
Conclusion	
Bibliography	



In which section of the report would you expect to see...?

Structure

Section	Which includes...
Introduction	a short description of the problem and data set (including context, background, what you're doing and why)
Literature review	a short summary of some related literature, including the data set reference and at least two additional relevant research papers of your choice; identify what is already known about the topic and justify your chosen methodology
Method	the user feature(s), and the rationale behind including them; the classifiers and evaluation method(s) and metric(s) you have used (and why you have used them)
Results	Summary of findings including evaluation metric(s) and illustrative examples
Discussion/Critical analysis	Critical analysis of the data and supported reasons for relative performance of different runs over the data; the systems behaviour, based on the understanding from the subject materials
Conclusion	Significance of findings, usefulness of study, further research recommendations
Bibliography	Sources used in the paper (including Rosenthal 2017)

Hypothesis/research questions

Section

Introduction

Literature review

Method

Results

Discussion/Critical
analysis

Conclusion

Bibliography

Why do you need a hypothesis or research question?



How and why do the experiment results change as a result of using a different set of features?



Why does one Machine Learning model develop better or worse results than another?

Why does each model generate different types of errors and what does this show?

How can they help tie your paper together (improve cohesion)?

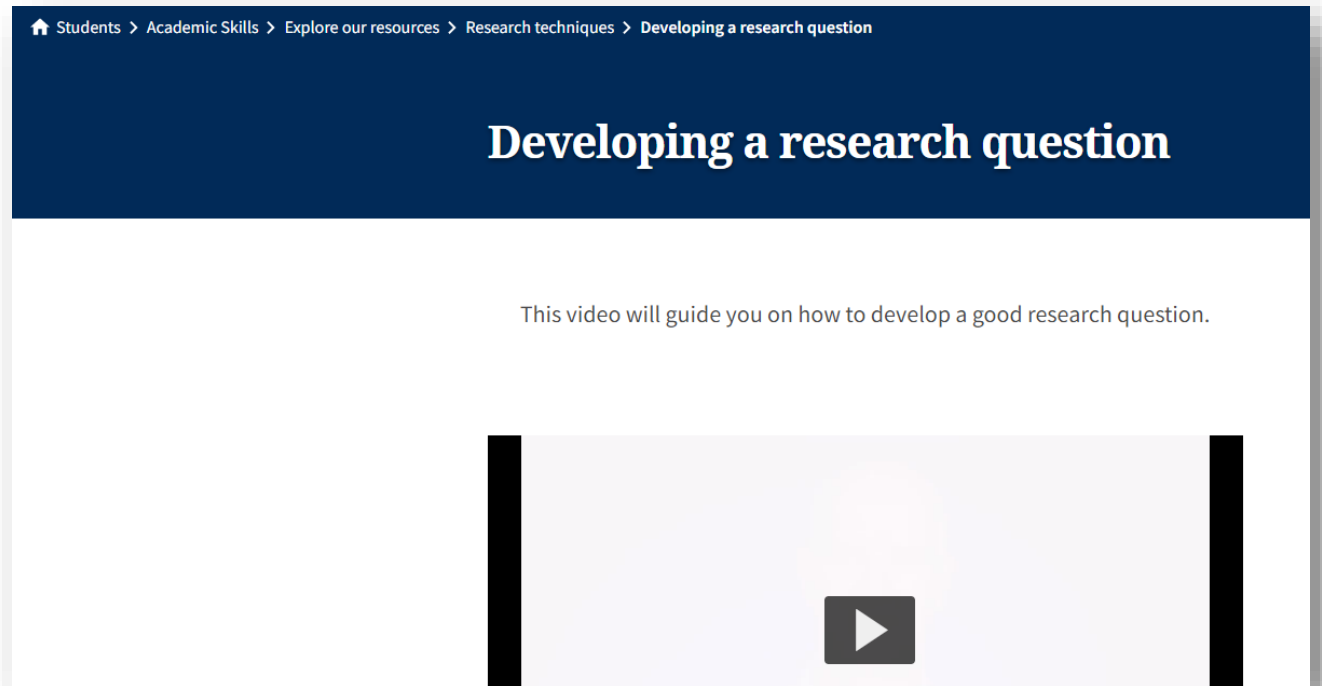


Search

‘Developing a research question UniMelb’



Bookmark



Method

Section

Introduction

Literature review

Method

Results

Discussion/Critical analysis

Conclusion

Bibliography

Include the user feature(s), and the rationale behind including them; the classifiers and evaluation method(s) and metric(s) you have used (and why you have used them). A detailed description of code is not needed in this section.



Find where the authors have outlined the methods in the sample paper. What do you notice about the level of detail, verb tense and personal pronouns?



Results, discussion and data analysis

Section

Introduction

Literature review

Method

Results

Discussion/Critical analysis

Conclusion

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How do you differentiate between what goes in the results section vs the discussion section?

→ Summary of findings including evaluation metric(s) and illustrative examples

→ Critical analysis of the data and supported reasons for relative performance of different runs over the data; the systems behaviour, based on the understanding from the subject materials.

This is also an opportunity to discuss:

- Adequacy of sampling techniques
- Problems with data collection/analysis
- Disappointing results
- Appropriateness of methodology

Tip: Ask yourself, “What do I know now, that I didn’t know before I completed this research?”

Results, discussion and data analysis

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Analysing the data

- Use a list of questions to focus while analysing the data
- Organise the data, trying different views, to identify trends, patterns and relationships
- Present data in a clear and easy to understand way
- Label graphs/charts correctly
- Use functional language to highlight specific findings



Find at least one example of a chart or a graph in the sample paper. How is it labelled and referred to in the text?

Improving cohesion

Whole-paper cohesion

Section

Introduction

Literature review

Method

Results

Discussion/Critical
analysis

Conclusion

Bibliography

Paragraph-level cohesion

There has been a large amount of research in the area of sentiment classification. Traditionally, most of the research has focused on classifying larger pieces of text, like reviews [9]. Tweets (and microblogs in general) are different from reviews primarily because of their purpose. While reviews represent summarized thoughts of authors, tweets are more casual and limited to 140 characters of text. Generally, tweets are not as thoughtfully composed as reviews. Yet, they still offer companies an additional avenue to gather feedback.

Improving cohesion

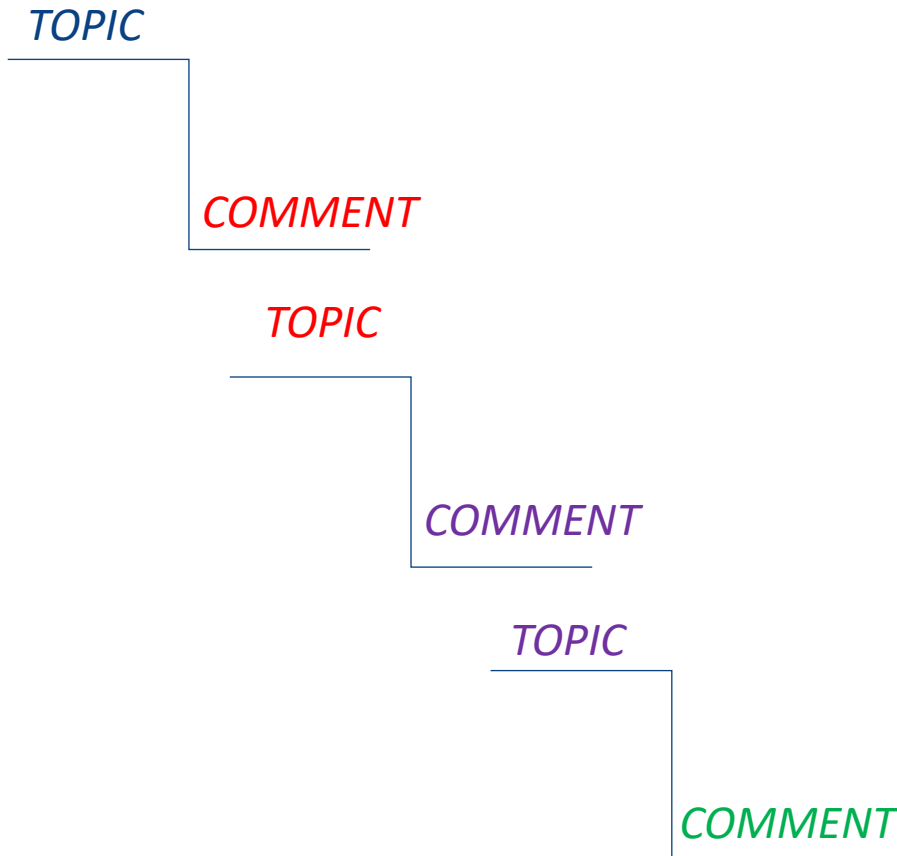
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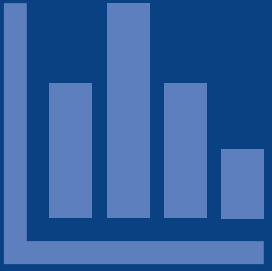
Bibliography

Paragraph-level cohesion

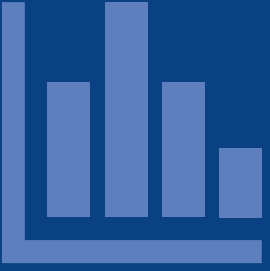
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Sentence-level cohesion

There has been a large amount of research in the area of sentiment classification. **Traditionally**, most of the research has focused on classifying larger pieces of text, like reviews [9]. Tweets (and microblogs in general) are different from reviews primarily because of their purpose. **While** reviews represent summarized thoughts of authors, tweets are more casual and limited to 140 characters of text. **Generally**, tweets are not as thoughtfully composed as reviews. **Yet**, they still offer companies an additional avenue to gather feedback.



Which of these connecting words show contrast?



Which of these connecting words show 'emphasis'?



Use connecting words and phrases to bridge gaps between your ideas

Alternatively

Conversely

Despite

Instead

Contrary to

Yet



For contrast

Again

Interestingly

Indeed

Most importantly



For emphasis



Find at least two examples of connecting words/phrases in the sample paper



Search

‘Connecting ideas in writing Unimelb’



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Connecting ideas in writing

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- [Connectives used in and between sentences](#)
- [Connecting paragraphs](#)
- [Checking for paragraph links in your own work](#)
- [Related resources](#)

Suggestions for connecting ideas at the sentence and paragraph level in academic writing.

In academic writing, it is important to present an argument clearly and cohesively. In addition, you may be required to discuss and evaluate existing research or ideas about the topic under discussion. Often you will be assessed on your ability to do both. Developing the language to connect ideas in academic writing will help you with both these tasks. The appropriate use of ‘discourse markers,’ that is, words or phrases that signal a relationship, can reveal and reinforce the direction that your argument is taking, and make clear the relations between sections of your writing.



Use functional language to demonstrate your critical analytical thinking

One exception is the work of Hovy (2015), which shows that the accuracies of sentiment analysis and topic classification can be improved by the inclusion of coarse-grained author demographics such as age and gender. However, such demographic information is not directly available in most datasets, and it is not yet clear whether predicted age and gender offer any improvements. On the other end of the spectrum are attempts to create personalised language technologies, as are often employed in information retrieval (Shen et al., 2005), recommender systems (Basilico and Hofmann, 2004), and language modelling (Federico, 1996). But personalisation requires annotated data for each individual user—something that may be possible in interactive settings such as information retrieval, but is not typically feasible in natural language processing.



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Use functional language to demonstrate your critical analytical thinking

Different theories exist in the literature regarding ...

Most research on X has been carried out in ...

Most researchers investigating X have utilised ...

Using this approach, researchers have been able to ...

One of the most well-known tools for assessing ...

Traditionally, X has been assessed by measuring ...

There are three main types of study design used to identify ...

Criteria for selecting the subjects were as follows:

Publications were only included in the analysis if...

In particular, the analysis of X was problematic.

In observational studies, there is a potential for bias from ...

One interesting finding is ...

The current study found that ...

This study confirms that X is associated with ...

This finding was also reported by Smith *et al.* (1989).

The yields in this investigation were higher compared to those of other studies.

This result may be explained by the fact that ...

One of the issues that emerges from these findings is ...



Find at least one example of functional language demonstrating the authors' critical thinking.



Search for: 'University of Manchester Academic Phrasebank'



Clear and concise language

Stripping out the emoticons causes the classifier to learn from the other features (e.g. unigrams and bigrams) present in the tweet. The classifier uses these non-emoticon features to determine the sentiment. This is an interesting side-effect of our approach. If the test data contains an emoticon, it does not influence the classifier because emoticon features are not part of its training data. This is a current limitation of our approach because it would be useful to take emoticons into account when classifying test data.

Clear and concise language

*Stripping out the emoticons **causes** the classifier to learn from the other features (e.g. unigrams and bigrams) present in the tweet. The classifier **uses** these non-emoticon features to determine the sentiment. This is an interesting side-effect of our approach. If the test data **contains** an emoticon, it **does not** influence the classifier because emoticon features are not part of its training data. This **is** a current limitation of our approach because it would be useful to take emoticons into account when classifying test data.*



Find at least one example of a subject-verb sentence structure.

If the sentences are ***short and related***,
then join them

Less than 8 words in the sentence (1 line in a Word doc)	Very short sentence	OK, but don't use too many of these; writing can appear short and choppy, hard to read.
8-15 words (1 - 1.5 lines)	Short	✓ OK combined with 15-25.
15-25 words (2 - 3 lines)	Average number per sentence.	✓✓ This length will form the majority of your sentences.
25-35 words (3 - 4 lines)	OK, but becoming long.	✓ Can be effective if the point is worth making in a single sentence; make sure you have control over the idea(s) though and use appropriate connecting / linking words.
35-45 words (4 - 5 lines)	Long	Consider breaking up the idea(s) into two or more shorter sentences.
More than 45 words (+ 5 lines in a Word doc)	Too long	✗ Avoid this; the point gets lost, control over the language is lessened and chances for errors in form and logic increase.

If the sentence is +40 words (not a list), consider breaking it up



Sentence length and combining ideas

Joining short sentences:

Our approach is to represent each query term as a QUERY TERM equivalence class. It allows us to normalise the effect it has on classification.

Our approach is to represent each query term as a QUERY TERM equivalence class, which allows us to normalize the effect it has on classification. (25 w)

Cutting long sentences:

If the test data contains an emoticon, it does not influence the classifier because emoticon features are not part of its training data, which is a current limitation of our approach because it would be useful to take emoticons into account when classifying test data. (45 w)

If the test data contains an emoticon, it does not influence the classifier because emoticon features are not part of its training data. This is a current limitation of our approach because it would be useful to take emoticons into account when classifying test data.



Search

‘Clarity and focus unimelb’



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Developing clarity and focus in academic writing

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- [Organising information in a sentence](#)
- [Start sentences with your topic](#)
- [End sentences with new or important information](#)

Academic writing aims to be clear and precise, with a direct style that moves logically from one idea to the next. This page describes how you can structure sentences and paragraphs to achieve clarity and ‘flow’ in your writing.

Organising information in a sentence

In a direct style, the information in sentences tends to be organised from:

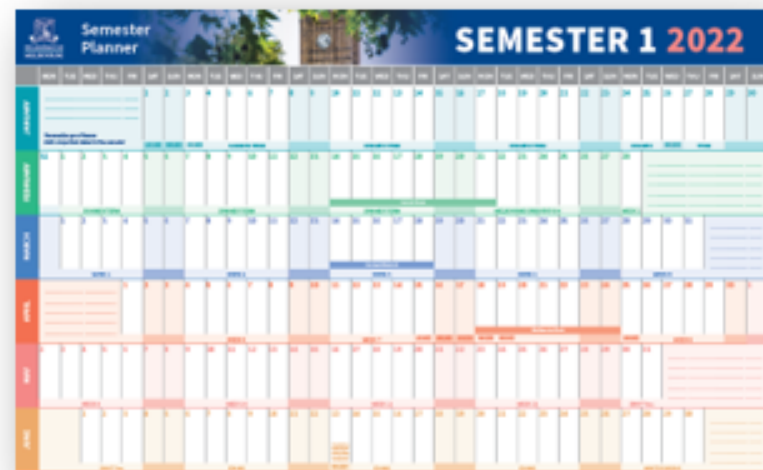
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