English
Language
Teaching
Centre.

English language support for computer science

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Learning objectives

Criticality in academic writing

Summarising the main points in a conclusion

Review quiz

1. What is the function of an abstract?
2. Which section comes after the literature review?
3. What do you need to include in a citation in the Harvard style?
4. What is another name for the list of references?
5. In which section of the dissertation could you give recommendations for future research?
6. Why should you express caution when discussing your results?
7. What tense would you normally use to explain the limitations of your research?
8. What's the difference between coherence and cohesion?
9. How do you organise a list of references in the Harvard style?

Review quiz

1. What is the function of an abstract? To give the reader an overview of the whole paper.
2. Which section comes after the literature review? Requirement analysis
3. What do you need to include in a citation in the Harvard style? Surname, year, page number.
4. What is another name for the list of references? Bibliography.
5. In which section of the dissertation could you give recommendations for future research? Discussion or conclusion.
6. Why should you express caution when discussing your results? You cannot be certain of the factors that influence the results.
7. What tense would you normally use to explain the limitations of your research? Past tense
8. What's the difference between coherence and cohesion?
9. How do you organise a list of references in the Harvard style? Alphabetical order.

In academic writing, including dissertation writing, you are expected to show a critical approach.

What is the difference between critical writing and descriptive writing?

What's the difference?

Descriptive writing	Critical analytic writing
States what happened	Identifies its significance
States what something is like	Evaluates strengths and weaknesses
Lists details	Evaluates relative significance of details
States the order in which things happened	Makes reasoned judgments
Says how to do something	Argues a case according to the evidence

Which of the following are most relevant for critical thinking/writing – and why?

1. Identifying weakness in research
2. Suggesting limitations in your own research
3. Discussing possible reasons for an unexpected result
4. Defining a concept from a set of examples
5. Describing a process in detail
6. Predicting what will happen next over the next 5 years
7. Giving another student some feedback on their writing
8. Setting up and testing a research hypothesis
9. Giving reasons for unexpected results from an experiment
10. Explaining how something works

In which parts of your dissertation would you show critical thinking?

Introduction

Literature review

Results and discussion

Conclusion

What is critical writing?

- clearly and confidently refusing to accept the conclusions of other writers without evaluating the arguments and evidence that they provide;
- balanced presentation of reasons why the conclusions of other writers may be accepted or may need to be treated with caution;
- clear presentation of your own evidence and argument, leading to your conclusion; and
- recognition of the limitations in your own evidence, argument, and conclusion.

Source: http://www2.le.ac.uk/offices/ld/resources/writing/writing-resources/critical-writing

Read the extract from the discussion section of dissertation on ‘Predicting emojis’. Which parts of the text show critical thinking?

Most current work on emojis in Natural Language Processing focuses on their semantics and the meaning they encode in relation to the surrounding text, investigating them in the context of sentiment analysis [77, 112, 113, 114], mapping them into semantic space to analyse their meaning [9, 30, 32, 88, 115], or labelling text with an emoji that was removed from it [5, 6, 7, 17], with very little consideration given to the importance of the positioning of emojis within the text they co-occur with. Commercially available emoji prediction systems also disregard restraints on emoji positions, predicting them either always [98] or after certain trigger words [11], but not limiting the predictions in any way with regards to placement.

In contrast to this, the results of our experiments indicate that syntactic constraints play a very important role in emoji use, perhaps even more so than semantic ones, as it seems critical at what position an emoji appears within a tweet. The language models we used to investigate emoji usage within a dataset of tweets all seemed to learn that there is a strong constraint on what positions emojis can appear in: sometimes as a substitution of a specific related word (this seemed to only happen for ❤, which could replace *love*), but apart from that, emojis seem to only be allowed at the end of a completed phrase.

The certainty analysis of the models indicates that while there is a link between specific emojis and certain words (similar to what has been found in previous investigations into emoji semantics [9, 30, 32, 88, 115]), it seems much more important to uphold syntactic constraints on emoji position. Even for obvious links between emojis and words, such as ☀ and *sun*, if the input is a single word, the models prefer to continue the tweet further instead of directly placing the emoji. However, if the same word is at the end of a full phrase, it is much more likely to be followed by the emoji. This effect increased even more when adding sentence completion markers, which highlights the link between a phrase being finished and an emoji appearing. Moreover, even when there was a word within a sentence that has a strong semantic link to some emojis (like *love* and the emojis ❤, 💕 or 😍), the models strongly disfavoured predicting any of these emojis as a next token if the current position was within an unfinished phrase, such as immediately after a preposition still in need of a following noun. This perhaps highlights the shortcomings of current emoji prediction approaches where the emoji is removed from the text and then predicted as label for the full text.

Finding a gap in the research (‘very little consideration given to the importance of…’)

Explaining the shortcomings of current research (‘This perhaps highlights the shortcomings of current emoji prediction’)

Highlighting your contribution to the field (‘In contrast to this, the results of our experiments indicate that…’)

Useful phrases for introducing criticism of other work

However,)	Smith fails to fully define what ... Jones fails to acknowledge the significance of ... the author overlooks the fact that X contributes to Y. what Smith fails to do is to draw a distinction between ... the paper would appear to be over-ambitious in its claims. another weakness is that we are given no explanation of how ... no attempt was made to quantify the association between X and Y. the main weakness of the study is the failure to address how ... the study fails to consider the differing categories of damage that ... the research does not take into account pre-existing ... such as ... the author offers no explanation for the distinction between X and Y. Smith makes no attempt to differentiate between different types of X.

What is wrong with the following extract?

We found that our results were more accurate than all other current systems. This proves that our machine learning classification algorithm is superior to all others. Furthermore, our LSTM neural network gave reasonable accurate results. Although it did not work perfectly, we believe it will always produce better results than alternative applications.

In academic writing, try to avoid making very strong claims.

Use cautious language to express your conclusions.

We found that our results were generally more accurate than other current systems. This suggests that our machine learning classification algorithm has advantages over other approaches. Furthermore, our LSTM neural network gave reasonable accurate results. Although it did not work perfectly, it appears that it may be capable of producing better results than alternative applications.

Using language with a suitable amount of caution also shows that you are thinking critically. It can protect your claims from being easily dismissed. It also helps to indicate the level of certainty we have in relation to the evidence or support.

Expressing caution when discussing results

These findings may help us to understand …

This finding, while preliminary, suggests that ….

This finding has important implications for developing …

This observational study suggests that a diet rich in X may help prevent …

These findings raise intriguing questions regarding the nature and extent of …

This combination of findings provides some support for the conceptual premise that …

Cautious language practice

Evaluate the cautious language in the following sentences.

1. The Earth's diameter might be 12,756 kilometres.
2. The opinion polls prove that the Liberal Party will win the election.
3. One of the main functions of the pancreas is to produce hormones.
4. There is always a tendency for the figure to rise sharply.
5. The data seem to suggest that Sowton's argument is correct.
6. It is assumed that the civil law and criminal law are different.
7. Undoubtedly, these problems may have begun last year.

Cautious language practice

Evaluate the cautious language in the following sentences.

1. The Earth's diameter might be 12,756 kilometres. (It's not appropriate to use cautious language here)
2. The opinion polls suggest that the Liberal Party will win the election.
3. One of the main functions of the pancreas is to produce hormones. (not needed)
4. There is always a tendency for the figure to rise sharply. (it depends on the context)
5. The data seem to suggest that Sowton's argument is correct.
6. It is assumed that the civil law and criminal law are different. (not needed)
7. Undoubtedly, these problems may have begun last year.

Overall structure of dissertation and summing up main points

‘Every chapter but the introduction and conclusions should have an introductory section that sets the scene for the chapter, i.e. explains the reasoning behind the chapter's structure.’

PGT Dissertation handbook.

Look at the following example of a chapter introduction.

Chapter 4

Approaches

This chapter will cover the methods we will develop and apply to detect emotion in Twitter data. We will focus on the libraries we can use as well was how we could go about building a more up-to-date corpus of training data.

We will first discuss how we can develop our base-line classifier using naive bayes. Using this as a basis we can look at using a 3rd party library, such as scikit learn [59] to get a more reliable benchmark.

We will move on to pre-processing the data, discussing how we should tokenize the tweet content and what type of language modelling we should use. We can also look at restricting words in tweets to more standard terms (minimum document frequency) and stemming tokens to their raw form to reduce the size of the vocabulary.

We move on to look at different classification algorithms to see which is likely perform best in our domain (Twitter data). We will use scikit-learn [59] as our library for defining these classifiers. We will evaluate each classifier by looking at the precision, recall, and f-score as well as the overall accuracy.

A short introduction improves the overall cohesion of your dissertation. It allows the reader to follow your ideas easily and creates a sense that the sections of your work flow smoothly.

It’s important to summarise the main points of your dissertation in the conclusion.

Read the following example of a summary from a conclusion.

What language (tenses, phrases) does the writer use in the conclusion?

It’s important to summarise the main points of your dissertation in the conclusion.

Read the following example of a summary from a conclusion.

What language (tenses, phrases) does the writer use in the conclusion?

Present perfect, past tense.

What should you avoid doing in the conclusion?

Repeating exactly the same words you have used in previous sections.

Look at the extract from an introduction and a conclusion.

Was the writer successful at paraphrasing his own work?

This work aims to combine deep learning techniques and satellite imagery to predict poverty in Brazil.

This dissertation assessed the effectiveness of employing satellite images to predict poverty in Brazil.

Paraphrasing

1. changing word class
2. Changing vocabulary
3.
4.

Paraphrasing

1. Changing word class
2. Changing vocabulary
3. Changing order of points.
4. Change grammar, e.g. passive to active

Paraphrase the dissertation aims

1. The focus of this project is to build a functional Evolutionary Algorithm within the Minecraft universe.

2. This project focuses on providing means for promoting a healthier lifestyle to people through technology. The final aim of this project is to develop a mobile application that would motivate people to change their eating habits and inherit a healthier and proper diet.

1. The construction of an Evolutionary Algorithm for Minecraft was the primary objective of this project.
2. This project was concerned with creating technology for the promotion of healthy lifestyles. The main aim was to build a mobile application to encourage better eating habits.

Introductions and conclusions

Similarities

1.Both mentions aims and main ideas.

2.

Differences

1.

2.

3.

Introductions and conclusions

Similarities

1.Both mentions aims and main ideas.

2. Both are quite short (about 10% of total words)

Differences

1. Conclusions focus more on results and implications.
2. Conclusions mention limitations.
3. Conclusions discuss suggestions for future work.

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To Discover And Understand.