English language support for computer science
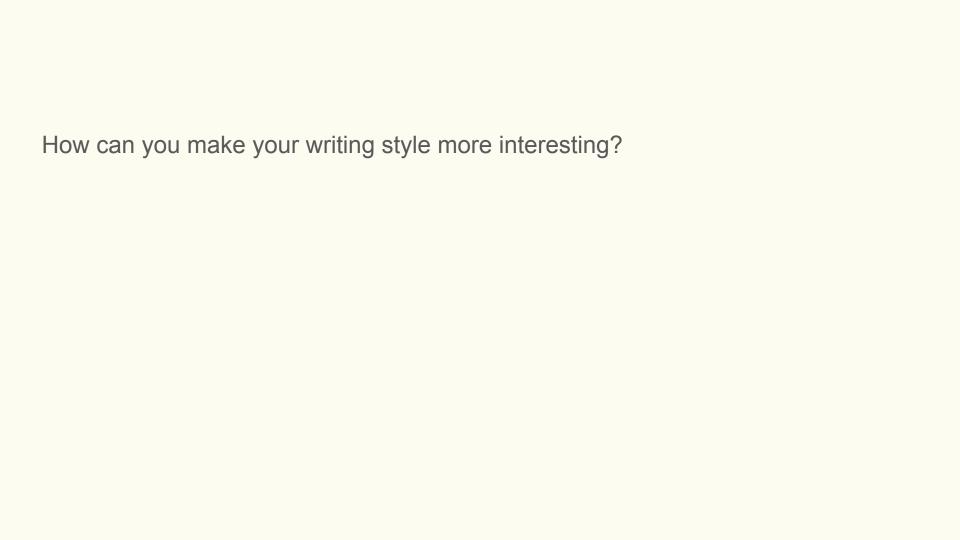
Sentence structure

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How can you make your writing style more interesting?

One way to make your style more interesting is to use a variety of sentence structures.

Sentence Structure

1.   How many words?

   - Keep sentences quite short: 15-25 words.

2. Maximum number of verbs?

   - Use a maximum of three verbs in a single sentence.

3. How to show the connections between your ideas?

   - Use connecting words

4. How to break up long sentences?

   - Use punctuation (e.g. semi-colon ;) to break up long sentences.

5. How to organise your information?

   - Put 'old' or previously mentioned information earlier in the sentence and new information in the later part of the sentence.

Once a writer knows the difference between the three sentence types (simple, compound, and complex), it is possible to write with sentence variety. Sentence variety helps make your writing more interesting.

Simple sentences

♦ A simple sentence contains a subject and verb.

♦ It expresses a single complete thought.

♦ A simple sentence is a single independent clause

Technology has transformed our lives.

The researchers developed an algorithm.

The software gains access to a user's location.

Compound sentences

A compound sentence contains two independent clauses.

Conjunctions (for, and, nor, but, or, and yet, so) join these independent clauses.

Google Maps is a primary resource, and many people plan their journeys with it.

An algorithm was built, and used to detect many routes on a map.

Complex sentences

♦ A complex sentence is an independent clause joined by one or more dependent clauses.

♦ A subordinating conjunction begins the dependent clauses.

♦ A dependent clause that begins a sentence must be followed by comma.

♦ A dependent clause has a subject and a verb, but it does not make sense on its own.

Sample complex sentences

The location updates are received while the user is using the application.

This can be made possible by utilising the location services that are available on all smart phone devices.

Can you identify the problems with sentence structure in the following sentences.

Problem 1

Because of the inefficiency of the algorithm.

Problem 2

A person using the application can see which route is the shortest, which directions to take to get to their destination.

Problem 3

This algorithm will focus on modelling areas of the map a segment at a time and the results dependent on the data supplied to it.

Problem 4

The location updates received while the user is using the application they will be extracted and stored.

Are the sentences too long? How can you rewrite the text to make it easier to read?

Finally, functionality will be delivered to the users and the different paths that have been established in the route detection algorithm will be collated to construct a single graphical representation, which which will be our final map. A shortest path algorithm will be integrated, so that a user can provide their desired start and the algorithm will utilise the generated map to provide an answer. This process is called route planning.

Try to identify the sentence types in the text and name the kinds of clauses that make those sentences simple, compound or complex.

Finally, functionality will be delivered to the users. In addition, the different paths that have been established in the route detection algorithm will be collated to construct a single graphical representation. This which will be our final map. A shortest path algorithm will be integrated, so that a user can provide their desired startand and the algorithm will utilise the generated map to provide an answer. This process is called route planning.

Relative clauses

We can add information to our sentences and make them more complex by using relative clauses.

We're going to finish the presentation with this slide. It is the one I showed you at the beginning.

We're going to finish the presentation with this slide, <u>which I showed you at the beginning.</u>

Relative clause use relative pronouns such as *which, that, where, who* and *whose*.

Relative clauses

- Short sentences used when longer ones with relative clauses would be better.

  The combustion chamber has three zones. The first zone is the main combustion zone. Most of the fuel is burned in this zone. The second zone is afterburning zone. There are many air intakes in this zone, allowing air to enter and make sure the fuel burned fully. The third zone is transition zone. High temperature and high pressure gas enters the turbine through this zone.

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The first zone is the main combustion zone. Most of the fuel is burned in this zone.

The first zone, in which most of the fuel is burned, is the main combustion zone.

Relative clauses

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The second zone is the afterburning zone. There are <mark>many air intakes</mark> in this zone, allowing air to enter and make sure the fuel burned fully.

The second zone, <u>which is the afterburning zone</u>, contains <mark>many air intakes</mark>, allowing air to enter and make sure the fuel burns fully.

The second afterburning zone contains <mark>many air intakes</mark>, <u>which allow air to enter and make sure the fuel burns fully.</u>

Artificial intelligence is a branch of computer science. There have been significant advances in artificial intelligence in the last three decades.

Neural machine translation uses encoder-decoder architecture. This is widely used in sequence transformation tasks.

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Artificial intelligence is a branch of computer science in which there have been significant advances the last three decades.

Neural machine translation uses encoder-decoder architecture, which is widely used in sequence transformation tasks.

Alan Turing, whose work has been very influential in the development of artificial intelligence, developed an early model of a computer called a 'Turing machine'.

Punctuation

Mathematical writing should use correct punctuation.

. = full stop

, = comma

: = colon

; = semi-colon

( ) = brackets

! = exclamation mark

' = apostrophe

Colons are used to add extra information after a clause. This can be divided into three main categories.

1. Lists

Example: We need three kinds of support: economic, moral and political.

2. Explanations - *A colon can be used before an explanation.*

3. Quotations

The Semicolon

Semicolons have two main uses in academic writing:

 1. **To separate closely-related sentences**

A semicolon can be used to separate two sentences which could be written as independent sentences but are very closely related in meaning.

2. Complicated Lists

A semicolon can also be used to separate items in lists; we often do this especially if the items are long and complicated and already contain commas.

Add full stops, commas and capital letters to the text

Navigation is a core part of everyday life and technology has transformed how a person gets from A to B Google Maps is an example of this as the primary resource used by so many people to plan their routes a person can see which route is the shortest which directions to take to get to their destination, and how far away it is these are all well-established functionalities available due to the comprehensive mapping of the world's streets and roads however one region that goes unaccounted for is our rural spaces such as country walks which are a staple of British life and culture.

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