Clearer Writing for Computer Science

The Learning Hub
Academic Language & Learning

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THE UNIVERSITY OF SYDNEY

Discussion: How confident are you?

- What **feedback** have you received about your writing in the past?
- What do you find **most difficult** when writing?
- What do you think is meant by **clear writing**?

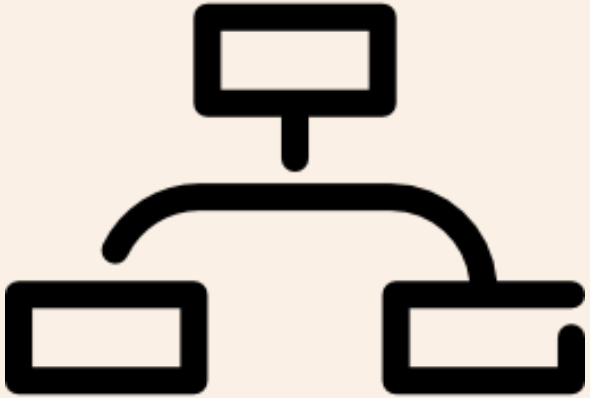
Today's workshop

We will focus on writing at a paragraph level to understand:

1. The required **structure of a paragraph**
2. How to organise information within a paragraph
3. How to write **paragraphs that flow**

Part 1: Paragraph structure

- What do you know about paragraph structure?
- How do you **begin**?
- What do you do **next?**
- How do you **finish** your paragraph?



MEAL paragraph structure

Part	Purpose
Main idea	Statement that clearly states paragraph focus
Evidence	Paraphrase, summary, quotation with citations
Analysis	Explanation, interpretation, relationships between pieces of evidence
Link	Statement that draws paragraph to an end. Links back to argument in introduction or forward to subsequent paragraph

Paragraph Structure: MEAL structure

M = main idea (topic sentence)

The advantage of using a kernel-based classifier is that the kernel *k* allows us to express nonlinearities in a simple way. It does this by implicitly mapping the input space *X* to a high dimensional feature space *Hk* of non-linear basis functions... For many kernels, such as the Gaussian kernel... This elegant and convenient result enables exact inference to be performed while only requiring a finite kernel gram matrix of the size of the dataset ($n \times n$) to be computed. In this way, the capacity of the model grows with the size of the dataset, which makes kernel methods nonparametric and very flexible, as it can adapt to the complexity of a dataset even with relatively simple kernels.

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E = Evidence/ Example

Paragraph Structure: MEAL structure

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A= Analysis (Explain, interpret or add information)

Paragraph Structure: MEAL structure

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L= Link or Lead out (Connect to the main idea or next paragraph)

Activity 1: Order the paragraph

1. Kotkov et al. (2024) conducted a user study on an article recommendation system and found that many recommendations users considered serendipitous were not captured by traditional metrics.

2. Unlike accuracy, which can be easily calculated using known user-item ratings, serendipity is a subjective and user-centred concept.

3. Their study showed that no single definition or metric matched user opinions well, highlighting the need for better evaluation methods.

4. This revealed a kind of “dark matter” of serendipity—valuable experiences that existing methods missed.

Original paragraph

1. Unlike accuracy, which can be easily calculated using known user-item ratings, serendipity is a subjective and user-centred concept.

2. Kotkov et al. (2024) conducted a user study on an article recommendation system and found that many recommendations users considered serendipitous were not captured by traditional metrics.

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Part 2: Information structure

Consider information on a sentence level:

- What information do you place at the **start** each sentence?

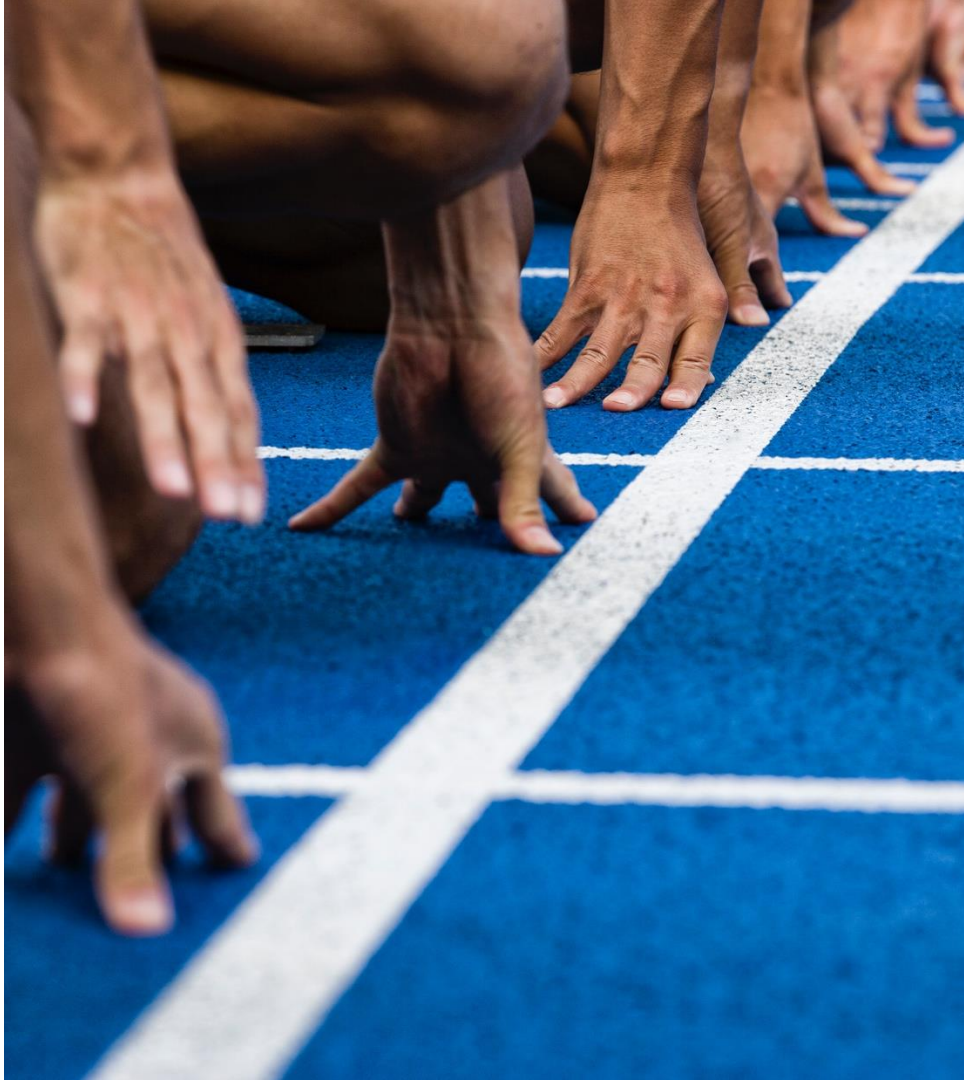
- What do you place in the **middle?**

- And the **end** of each sentence?

Different information structures

Beginning	Middle	End
The researchers	conducted	a user study on an article recommendation system.
A user study on an article recommendation system	was conducted	by the researchers.

What information should you place at the beginning of a sentence?



Paragraph 1: Find the main verbs

Unlike accuracy, which can be easily calculated using known user-item ratings, serendipity is a subjective and user-centred concept.

Kotkov et al. (2024) conducted a user study on an article recommendation system.

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Paragraph 1: Identify the themes

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ratings, serendipity is a subjective and user-centred concept.

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Focuses on topic

Focuses on researchers

What is the focus of 'this'?

Activity 2: Which paragraph is clearer?

The peer-to-peer model is used to broadcast transaction data across the network. Each node in the network receives the data. Broadcasts between one node and another is how transactions are made.

Transactions are broadcast to the network using the peer-to-peer model. This model sees each node broadcast to its neighbour. Eventually, each node in the network will have received the data.

Activity 2: Clear or not? Why?

The peer-to-peer model is used to broadcast transaction data across the network.

Each node in the network receives the data.

Broadcasts between one node and another is how transactions are made.

.

Activity 2: Clear or not?Why?

Transactions are broadcast to the network using the peer-to-peer model.

This model sees each node broadcast to its neighbour.

Eventually, each node in the network will have received the data.

So, what information should you place at the end of a sentence?

Identify new information (after the verb)

Unlike accuracy, which can be easily calculated using known user-item ratings, serendipity is a subjective and user-centred concept.

Kotkov et al. (2024) conducted a user study on an article recommendation system.

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What is the relationship?

Theme (given)	New
Serendipity	a subjective and user-centred concept
Kotkov et al.	a user study on an article recommendation system
They	Many recommendations users considered….
This	A kind of ‘dark matter’ of serendipity

What is the relationship?

Theme (given)	New
Serendipity	a subjective and user-centred concept
Kotkov et al.	a user study on an article recommendation system
They	Many recommendations users considered….
This	A kind of ‘dark matter’ of serendipity

Activity 3: What is the relationship?

The peer-to-peer model is used to broadcast transaction data across the network.

Each node in the network receives the data.

Broadcasts between one node and another is how transactions are made.

A little tricky to see the relationship

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Activity 3: What is the relationship?

Transactions are broadcast to the network using the peer-to-peer model.

This model sees each node broadcast to its neighbour.

Eventually, each node in the network will have received the data.

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Easier to see the relationship

Information Structure (Theme to Theme progression)

Each transaction in the system originates from at least one account and is signed by the respective private key(s) belonging to the owner(s).

The transaction can contain a simple value transfer of assets, or as the technology progresses, data to invoke code running on the chain.

Transactions are batched in blocks, which are then stored on the ledger, and each block appends to the hash-chain of the ever-growing ledger.

Information Structure (New to Theme)

In the absence of a trusted authority for identification, there is no means of distinguishing the uniqueness of identities of machines.

This gives rise to Sybil Attacks, where a single adversary can assume multiple mode identities and skew the calculation of n.

This problem becomes superimposed in the permissionless model, such as Bitcoin, where nodes are already unknown and significant assumptions are placed on the available data.

Information Structure (New to Multiple Theme)

…deconstruction of the blockchain into three simple, critical components common to most known systems: membership selection, blockchain consensus and blockchain structure.

The membership selection is tasked with providing ….

The blockchain consensus, also denoted fork choice rule in some cases, is responsible ….

The structure dictates the representation of data, and provides …

Part 3: Reference words and conjunctions

- Create connections
- Assist logical flow of information

Reference words

May refer backwards or forwards to content words.

Backwards:
There are a number of phases of development. **These** are….

Conjunctions – signal relationships

Purpose	Conjunctions
Additional information	*Moreover, furthermore, in addition*
Comparison	*Similarly, however, in contrast*
Examples & explanation	*For example, in other words*
Cause & effect	*Due to, as a result*

Activity 4: Let's bring it all together

Go to the handout or look at a paragraph you have written.

1. Can you see the MEAL structure?
2. What information structure has been used?
3. What conjunctions have been used?
4. How would you change the paragraph to make it clearer?

And finally

Scan to find more information on clearer writing.

You may leave or stay if you would like feedback on the clarity of your writing.

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