LC-1114 Communicating technology

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Session 4

Today’s class

- Definitions (A3)
- Writing the Conclusion paragraph (A4)

BREAK

- Giving and receiving peer feedback
- Clarity & accuracy
- Peer review on A2

Definitions

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Definitions

Answer the question “What is it?”

Needed when presenting solutions for the problem:

- New concepts (audience)
- Terms used in a non-standard way

What is the problem with the following sentences?

1. **The Mars mission was originally funded to last 90 sols and to end in April.**
2. **The MSL was originally scheduled to launch on September 15, 2009.**
3. **The rover can perform all planned operations under solar power alone.**

What is the problem with the following sentences?

1. The Mars mission was originally funded to last 90 sols (one sol equals 24.65 hours) and to end in April.
2. The Mars Science Laboratory (MSL) was originally scheduled to launch on September 15, 2009.
3. The rover can perform all planned operations (e.g. driving, communicating, imaging) under solar power alone.

How much information do readers need?

- Always define new terms and concepts.
- Define terms you use in a non-standard way
- Define the terms you use if you are unsure readers will understand them.
- The **less readers know** about the topic**, the more you need to explain** the terms using language they can understand.

Let’s practice defining terms

Extended Definitions (A3)

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Task 1

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Types of definitions

1. Parenthetical definition
2. Sentence definition
3. Extended definition

1. Parenthetical definition

A parenthetical definition explains a term briefly in parenthesis or between commas using synonyms or examples.

Examples:

A term (definition**)**

The Mars mission was originally funded to last 90 sols **(One sol equals 24.65 hours)** and to end last April.

A term, definition,

The Mars mission was originally funded to last 90 sols, the equivalent of 90 Mars days, and come to an end last April.

1. Parenthetical definition

e.g.

- The rover can perform all planned operations, e.g., driving, communicating, imaging, under solar panel power alone

such as

- The Mars rover will seek samples that have mineral deposited by water-related processes, such as precipitation, evaporation and sedimentary cementation.

including

- The Mars rover has been designed to perform VARIOUS tasks, including imaging, driving and drilling.

i.e.

- On Mars, the average duration between two successive risings of Phobos is just over
- 11 hours, i.e., Phobos rises and sets twice every Martian day.

2. Sentence definition

A good sentence definition consists of three elements:

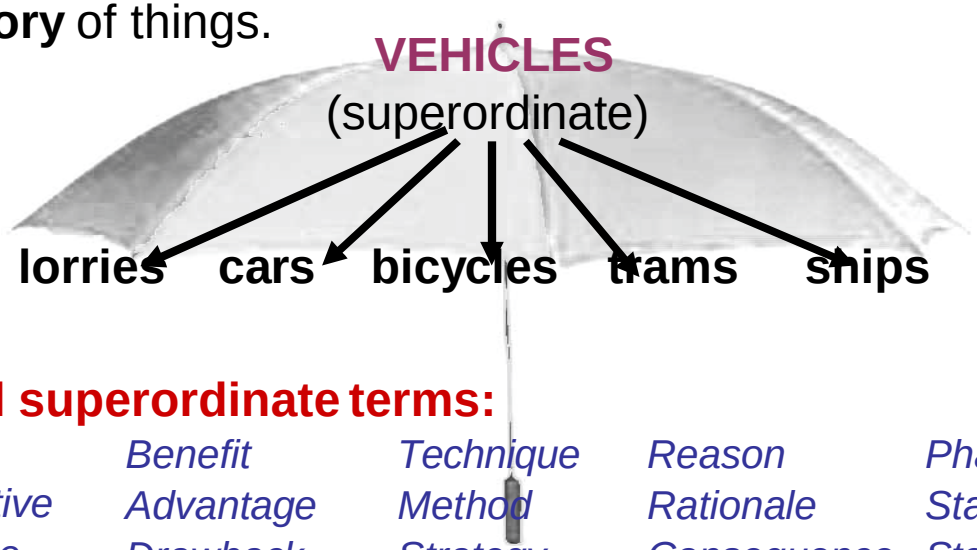
1. **Term** = object / concept to be defined
2. **Class** = group to which the thing belongs
3. **Characteristics** = specific details that separate it from others in the same class

2. Sentence definition

TERM	=	CLASS	+	CHARACTERISTICS
A car	is	**a** motor **vehicle**	**that**	is used for transporting passengers.
A media player	is	**an** eletronic **device**	**which**	can be used to store, transfer, and play back digital media, such as mp3 files and various video clips.
A house mouse	is	**a** small **rodent**	**that**	lives in a tiny hole and eats cheese.
An optical mouse	is	**a** pointing **device**	**that**	functions by detecting two-dimensional motion relative to its supporting surface.
A CEO	is	**a person**	**who**	is in charge of a corporation.
A university	is	**an organization**	**where / in which**	research and teaching is performed by scientists

Superordinate terms

'Umbrella' terms that can stand for an entire **class** or **category** of things.



Typical superordinate terms:

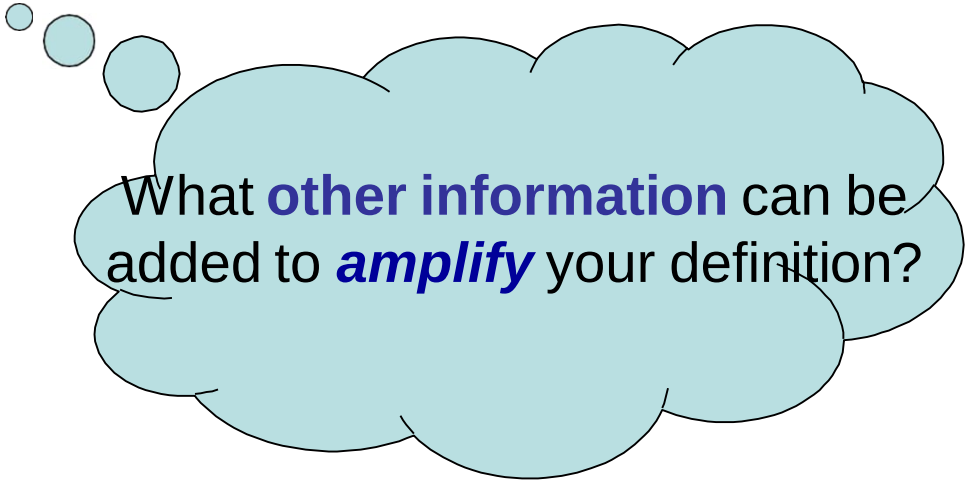
Option	*Benefit*	*Technique*	*Reason*	*Phase*
Alternative	*Advantage*	*Method*	*Rationale*	*Stage*
Example	*Drawback*	*Strategy*	*Consequence*	*Step*
Criterion	*Problem*	*Approach*	*Effect*	*Effect*
Feature	*Issue*	*Solution*	*Motivation*	*Procedure*
Aspect				

Sentence definition

- Write a sentence definition of a term you introduced in Assignment 2
- Make sure it includes the three elements of a good sentence definition:
  - Term
  - Class (category to which it belongs)
  - Characteristics (details that separate it from others in the same class)
- Share your definition with the people in your group.

3. Extended definition

- Extended Definitions usually begin with a **sentence definition**.



3. Extended definitions

Eight methods for amplifying an extended definition:

1.	**Analysis of parts**	*(What are its parts? classes? types?)*
2.	**Operating principles**	*(How does it work?)*
3.	**Applications / Examples**	*(How is it used or applied?)*
4.	**Analogy/ Comparison**	*(Is it similar to something familiar?)*
5.	**History**	*(What is its origin? Who developed it?)*
6.	**Advantages/ problems**	
7.	**Requirements**	*(What is needed to make it work?)*
8.	**Physical appearance/ features**	*(What does it look like? What are its characteristic features?)*

Consider

- Does your text include terms or concepts that need defining?
- What type of definitions are most suitable?

Tasks 2-3 on My Courses

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Task 2 Extended definitions

Take a look at the excerpts taken from extended definitions.
Which method of amplification (1-8) has been used in each?

A. The term **RADAR** was coined in 1941 as an acronym for Radio Detection and Ranging. The term has since entered the English language as a standard word, *radar*, losing the capitalization. Radar was originally called RDF (Radio Direction Finder) in the United Kingdom. 5. History ➔ **Etymology**.

B. The technique of **holography** can also be used to optically store, retrieve, and process information. While holography is commonly used to display static 3-D pictures, it is not yet possible to generate arbitrary scenes by a holographic volumetric dis 6. Problems/Disadvantages

C. **A fuel cell** is an electrochemical conversion device. It produces electricity from fuel (on the anode side) and an oxidant (on the cathode side), which react in the presence of an electrolyte. The reactants flow into the cell, and the reaction products flow out of it, while the electrolyte remains within it. Fuel cells can operate virtually continuously as long as the necessary flows are maintained. 2. Operating principle ➔**process**

Task 2

Take a look at the excerpts taken from extended definitions.
Which method of amplification (1-8) has been used in each?

D. **Fuel cells** differ from electrochemical cell batteries in that they consume reactant, which must be replenished, whereas batteries store electrical energy chemically in a closed system. Additionally, while the electrodes within a battery react and change as a battery is charged or discharged, a fuel cell's electrodes are catalytic and relatively stable. 4. Comparison

E. A **lighter** is a portable device used to create a flame. It consists of a metal or plastic container filled with lighter fluid (usually naphtha or liquid butane under pressure), as well as a means of ignition and some provision for extinguishing the flame, by depriving it of either air or fuel. 1. Analysis of parts

F. **LEDs** are widely used as indicator lights on electronic devices and increasingly in higher power applications such as flashlights and area lighting. In addition to lighting, interesting applications include using UV-LEDs for sterilization of water and disinfection of devices,[4] and as a grow light to enhance photosynthesis in plants.[5] 3. Applications

Task 3 Extended definitions

Which *amplification* methods have been used in this extended definition? Which sentence provides the sentence definition?

[1] **A 3D scanner is a device that analyses a real-world object or environment to collect data on its shape and possibly its appearance (e.g. colour) which can be used to construct digital three-dimensional models.** [2] Many different technologies can be used to build these 3D-scanning devices; however, each technology comes with its own limitations, advantages and costs.

[3] Many limitations in the kind of objects that can be digitised are still present; for example, optical technologies encounter many difficulties with shiny, mirroring or transparent objects. [4] The collected 3D data is useful for a wide variety of applications. [5] These devices are used extensively by the entertainment industry in the production of movies and video games.

[6] Other common applications of this technology include industrial design, orthotics and prosthetics, reverse engineering and prototyping, quality control/inspection and documentation of cultural artefacts.

t

Sentence definition

1

Limitations

2-3

Applications

4-6

Task 3 Extended definitions

Which *amplification* methods have been used in this extended definition? Which sentence provides the sentence definition?

7 The purpose of a 3D scanner is usually to create a point cloud of geometric samples on the surface of the subject. 8 These points can then be used to extrapolate the shape of the subject (a process called reconstruction). 9 If colour information is collected at each point, it is also possible to determine the colours on the surface of the subject . 10 3D scanners share several traits with cameras. 11 Similarly to cameras, they have a cone-like field of view, and they can only collect information about surfaces that are not obscured. 12 While a camera collects colour information about surfaces within its field of view, a 3D scanner collects distance information about surfaces within its field of view. 13 The "picture" produced by a 3D scanner describes the distance to a surface at each point in the picture. 14 This allows the three dimensional position of each point in the picture to be identified.

Operating principle

7-9

Comparison

10-14

Operating principle?

13-14

Assignment 3

- Write an **extended definition of the *solution*** that you're recommending and add it to your report
  - **Topic of definition:** the recommended solution to the problem identified in Assignment 2
  - **Length:** 300 words

- **Include the following elements**
  - **Title** (*descriptive* name of 'solution')
  - **Introduction paragraph** (A2, revised)
  - **Body section**: (extended definition of 'solution')
    - Sentence definition
    - 3-4 types of defining information (amplification methods)
  - In-text **references** to sources. List of references (at least 2-3 sources)

Consider

- What type of information would be relevant for the topic of your solution /extended definition assignment?

Conclusion (A4)

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A recommendation report

Introduction Max 200 words	**GENERAL CONTEXT** **Topic, focus and purpose of text Pattern: Problem-solution** **Client's situation-problem-solution-evaluation**
Body 300-350 words	**DESCRIPTION OF *SOLUTION*** **Pattern: Extended definition** **Sentence definition + 3-4 key properties** in A4.
Conclusion 50-100 words	**RECOMMENDATION and summary of key ideas/arguments**

Conclusion paragraph

wraps up the piece of writing, leaving the reader with a sense of completeness.

Conclusion paragraph

This report recommends that Audi adopt the Torsen four-wheel drive system due to its cost-effectiveness and high performance. Although the Torsen system achieves less than optimal performance under extreme conditions and consumes higher amount of energy through the transmission, it offers greater reliability and safety than Audi's current drive system. Since the safety is one of the most crucial aspects in modern car design, Torsen is considered to be the most desirable option for Audi.

(78 words)

Conclusion paragraph

(re)state recommendation

This report recommends that Audi adopt the Torsen four-wheel drive system due to its cost-effectiveness and high performance. Although the Torsen system achieves less than optimal performance under extreme conditions and consumes higher amount of energy through the transmission, it offers greater reliability and safety than Audi's current drive system. Since the safety is one of the most crucial aspects in modern car design, Torsen is considered to be the most desirable option for Audi.

(78 words)

Conclusion paragraph

Summarize the main ideas to justify the recommendation

This report recommends that Audi adopt the Torsen four - system due to its cost-effectiveness and high performance. **Although the Torsen system achieves less than optimal performance under extreme conditions and consumes higher amount of energy through the transmission, it offers greater reliability and safety than Audi's current drive system.** Since the safety is one of the most crucial aspects in modern car design, Torsen is considered to be the most desirable option for Audi.

(78 words)

Conclusion paragraph

This report recommends that Audi adopt the Torsen four-wheel drive system due to its cost-effectiveness and high performanc
the Torsen system achieves less than optimal performan c
extreme conditions and consumes higher amount of energ
transmission, it offers greater reliability and safety than Audi's current drive system. **Since the safety is one of the most crucial aspects in modern car design, Torsen is considered to be the most desirable option for Audi.**

Link the solution back to the original need (synthesize the key message about the topic)

(78 words)

Conclusion paragraph

- Be brief and to the point.
- Synthesize, don’t repeat every detail.
- Use different language when summarising or restating.
- Do not provide any new information!

Questions?

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