LC114 Communicating Technology

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Today’s session

Definition

Assignment A2 Introduction paragraph

Definition

Why is it important to define information?

Can you think of cases when definitions are especially needed?

What is a definition?

A definition answers the question “what is it?”

A definition gives readers information about the meanings of terms and concepts

Task 1

Each of these sentences has an element of information which is vague for most readers. Identify the terms that need explaining.

1. The Mars mission was originally funded to last 90 sols and to end last April.
2. The Mars Science Laboratory is scheduled to be launched on September 15, 2009.
3. The rover can perform all planned operations under solar panel power alone.
4. The Mars rover will seem samples that have minerals deposited by water-related processes.
5. The space mission will carry more advanced scientific instruments than any other mission ever sent to Mars.

1. The Mars mission was originally funded to last 90 sols (one sol equals 24.65 hours) and to end last April.
2. The Mars Science Laboratory (MSL) is scheduled to be launched on September 15, 2009.
3. The rover can perform all planned operations (e.g. driving, communicating, imagining) under solar panel power alone.
4. The Mars rover will seem samples that have minerals deposited by water-related processes, such as precipitation, evaporation, or sedimentary cementation.
5. The space mission will carry more advanced scientific instruments than any other mission ever sent to Mars, including those for analysis of samples scooped up from the soil.

Task 2

Which one of these definitions is the most effective?

What makes the others less effective?

a) **An mp3 player** is used **when playing mp3 files**.

b) A media player is **a what?** used to store, transfer, and play back digital media.

c) **A media player is a device which can be used to store, transfer, and play back digital media, such as mp3 files and various video clips.**

d) **A media player** is an electronic device. **It** can be used to store, transfer, and play back digital media. For example, **it** can be used to play mp3 files and various video clips.

e) **The** media player is **the device** that can be used in storing, transferring, and playing back digital media, such as mp3 files and various video clips.

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.

Types of definition

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.

(1) A term (definition)

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

(2) 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.

Common phrases used in parenthetical definitions:

- 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 minerals deposited by water-related processes, such as precipitation, evaporation, and sedimentary cementation.

Common phrases used in parenthetical definitions:

- including

The Mars rover has been designed to perform various tasks, including imagining, 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

Good sentence definitions consists of three elements:

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

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

Task 3

1. A machine is any device that uses energy to perform some activity.
2. Water distillation is a process in which volatile gases are removed in a degasification chamber.
3. Body mass index (BMI) is a measure of body fat based on height and weight that applies to both adult men and women.
4. Methane is a chemical compound with the molecular formula CH4.

3. Extended definition

Extended definitions usually begin with a sentence definition.

Think: what other information can be added to amplify your 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?)*

Task 4

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

Task 4

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 display.

6. Problems/Disadvantages

Task 4

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

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

Task 4

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 5

Read the extended definition here and discuss:

Can you identify which amplification methods have been used?

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.

Sentence definition
1

Limitations
2-3

Applications
4-6

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

That vs. *which*

THAT is only used in **defining** relative clauses

WHICH in **both** defining and non-defining relative clauses.

Remember: no comma in defining relative clauses!

Examples:

- DEFINING
  Defining the inputs and outputs provides a better understanding of the steps ***that / which*** are necessary to complete the process.

- NON-DEFINING
  Defining the inputs and outputs provides a better understanding of these steps**,** ***which*** are explained in 5.1.

A?

Which

WHICH is the only possibility and 'that' cannot be used in 3 special cases:

1. NUMERATOR + *of* + *which*

Finland has a diversity of ecosystem types**, each of which** can be broken down into many finer categories.

2. PREPOSITION + *which*

A non-falsifiable theory is a **hypothesis for which** no test can be devised.

3. REFERRING TO THE WHOLE OF A PREVIOUS CLAUSE

He managed to survive in Lapland for three weeks without food **, which** was amazing in light of the harsh winter temperatures.

A?

HOMEWORK

1. Assignment A2
2. Online Modules 2&3