ONLINE MODULE 2:
Making Your Text Reader-friendly (Part 1)

Task 1

Which of these formats do you prefer? Why?

t(time) = 15′, *T*(temp) = 28°; *t* = 0′, *T* = 25°; *t* = 6′, *T* = 29°; *t* = 3′, *T* = 27°; *t* = 12′, *T* = 32°; *t* = 9′, *T* = 31°; *t* = 8′, *T* = 30°

T (°C)	*t* (min)
25°	0′
27°	3′
29°	6′
31°	9′
32°	12′
28°	15′

t (min)	*T* (°C)
0′	25°
3′	27°
6′	29°
9′	31°
12′	32°
15′	28°

Task 2

Underline the words representing each of the following grammatical classes.

Noun → The dog quickly ate all the old food that was also left on the table.

Verb → The dog quickly ate all the old food that was also left on the table.

Adjective → The dog quickly ate all the old food that was also left on the table.

Adverb → The dog quickly ate all the old food that was also left on the table.

Preposition → The dog quickly ate all the old food that was also left on the table.

Task 3

Circle the verb and underline the <u>subject</u> in the following text.

[1]Compressed hydrogen tanks are made from a strong but lightweight material, such as carbon fiber. [2]Currently, these systems carry about 5,000 pounds per square inch of hydrogen, but the goal is 10,000 psi to improve vehicle range. [3]For safety purposes, the tank must have a burst strength at least twice the pressure of the fuel. [4]Thus, the tanks must be made from materials that are either very heavy or very expensive. [5]These tanks are also quite large, creating packaging problems in the vehicles.

Task 4

How do these two texts differ? Which do you prefer? Why?

Version A

[1]The application of science to the creation of useful devices to meet the needs of society is called mechanical engineering. [2]The design, manufacture, operation and maintenance of a wide variety of machinery are the focus of a mechanical engineer's work. [3]Jet engines and minute instruments for use in medicine are amongst the products designed by mechanical engineers. [4]Engineering drawings of the devices which are to be produced are created by mechanical engineers. [5]Manual work was the normal means of creating drawings before the late 20th century, but computer-aided design (CAD) programs have been used to create drawings and designs since the use of computers became widespread. [6]Three-dimensional models can be used directly for manufacturing the devices thanks to modern CAD programs.

Version B

[1]Mechanical engineering is the application of science to the creation of useful devices to meet the needs of society. [2]Mechanical engineers focus on the design, manufacture, operation and maintenance of a wide variety of machinery. [3]The products of their work range from jet engines to minute instruments for use in medicine. [4]Mechanical engineers usually create engineering drawings of the devices which are to be produced. [5]Before the late 20th century, drawings were usually made manually, but the widespread use of computers has now enabled the creation of drawings and designs using computer-aided design (CAD) programs. [6]Modern CAD programs allow engineers to produce three-dimensional models, which can be used directly in the manufacture of the devices depicted.

1. Place “Familiar” before “New” information

http://sana.tkk.fi/awe > Cohesion > Information Ordering > The "Given-New" principle

A. Constant Topic

FAMILIAR **NEW**

[1]…**hydrogen tanks** are made from…

↓

[2]…**these systems** carry…

↓

[3]…**the tank** must have…

↓

[4]… **the tanks** must be made from….

↓

[5]**These tanks** are also quite large…

[1]**Compressed hydrogen tanks** are made from a strong but lightweight material such as carbon fiber. [2]Currently, **these systems** carry about 5,000 pounds per square inch of hydrogen, but the goal is 10,000 psi to improve vehicle range. [3]For safety purposes, **the tank** must have a burst strength at least twice the pressure of the fuel. [4]Thus, **the tanks** must be made from materials that are either very heavy or very expensive. [5]**These tanks** are also quite large, creating packaging problems in the vehicles.

B. Step-wise Topic

.[1]Solid organic waste is fed into a coarse *shredder* and cut into pieces. [2]**The shredded pieces** are more finely ground into a paste before being *mixed* with manure and bio-sludge. [3]**The mixture** is transported to a primary mixing tank where it is undergoes a *homogenization process*. [4]**The homogenized biomass** is pumped into two *pasteurization tanks*, where it is held at 70 °C for one hour to produce a bacteria-free *slurry*.

[5]The **pasteurized slurry** enters a digester where it undergoes *methane fermentation* at 38 °C for 20-24 days. [6]**The fermentation process** yields *methane* at concentrations as high as 60-70%. [7]**This biogas** is recovered and used for generating power at the power generation facility, and **the digested slurry** is returned to the farmers as organic fertilizer.

[1]waste …**shredder** and cut into pieces.

↓

[2]The **shredded pieces** … **mixed** with manure and bio-sludge.

↓

[3]The **mixture** … a **homogenization** process.

↓

[4]The **homogenized biomass** … **pasteurization** tanks...

↓

[5]The **pasteurized slurry** …*methane* **fermentation**...

↓

[6]The **fermentation** process yields…

C. Hypertopic

FAMILIAR **NEW**

[1]… PEM fuel cells face **several challenges**.

[2]**Platinum catalysts** are expensive and....

[3]For this reason, catalyst improvements…

[4]**New membranes** more resistant to…

[5]… **storage methods**, such as...

[6]**Cold starts** from frozen internal water

[1]Proton exchange membrane (PEM) fuel cells face **several challenges**. [2]**Platinum catalysts** are expensive and also subject to CO poisoning from hydrocarbon fuels. [3]For this reason, catalyst improvements, non-precious metal catalysts and other alternatives are currently under intensive investigation. [4]**New membranes** more resistant to chemical impurities are also being developed. [5]Alternative **storage methods**, such as metal hydrides and carbon nanostructures, may address hydrogen storage limitations that have prevented fuel cell cars from achieving a typical driving range (300-400 miles/tank). [6]**Cold starts** from frozen internal water are improving, though the DOE’s goal of cold starts at -20°C in 30 seconds or less has yet to be achieved.

Task 5

Which pattern of topical progression is used to structure given and new information in the following texts?

A. [1]Schematics for electronic circuits are prepared by designers using Electronic Design Automation (EDA) tools called schematic capture tools or schematic entry tools. [2]These tools go beyond simple drawing of devices and connections. [3]Usually, they are integrated into the whole IC design flow and linked to other EDA tools for verification and simulation of the circuit under design.

B. [1]Fender is the American term for that part of an automobile, motorcycle or other vehicle body that frames a wheel well (i.e., the fender underside). [2]The primary purpose of a fender is to prevent mud, rocks, and other road debris from being thrown into the air by the rotating tire. [3]Because they are rigid and can be damaged by contact with the road surface, fenders typically include flexible mud flaps close to the ground where ground contact may occur. [4]In British English, the fender is called the wing, which may also refer to either the front or rear bumper.

C. [1]Computer technology has led to the increasing use of different forms of electronic communication, which have come to be known as ‘new media’. [2]The term is in contrast to "old" media forms, such as print newspapers and magazines, which are static representations of text and graphics. [3]New media includes web sites, chat rooms, email, streaming audio and video, such as ‘YouTube’, and virtual reality environments (e.g., Second Life). [4]The use of the term *new media* implies that the data communication is happening between desktop or laptop computers and the media they take data from, such as compact discs.

D. [1]A corrective lens is a lens worn in front of the eye to treat optical defects of the eye, such as myopia, hyperopia, astigmatism, and presbyopia. [2]Corrective lenses can be divided into three types: glasses, contact lenses, and intraocular lenses. [3]Glasses or "spectacles" are worn on the face a short distance in front of the eyes. [4]Contact lenses are worn directly on the surface of the eye. [5]Intraocular lenses are surgically implanted most commonly after cataract removal.

E. [1]Simulation is a powerful tool for understanding the dynamics of complex systems. [2]A simulation involves the development of a model to represent a real system and the experimental manipulation of that model to gain an understanding of how the real system might behave under various circumstances. [3]Models may be purely physical, such as a wind tunnel, or logical, as represented in a computer program. [4]Building computer models of complex systems has allowed decision makers to develop an understanding of the performance of the systems over time.

Avoiding endless repetition

How can you avoid constant repetition of the same form?

A solar panel *is a packaged interconnected assembly of solar cells.*
A solar panel *is used as a component in a larger photovoltaic system to offer electricity for commercial and residential applications.*
A solar panel *uses light energy (photons) from the sun to generate electricity through the photovoltaic effect.*

Types of "familiar" or repeated information

1. Direct repetition

By repeating the same noun or noun phrase from one sentence to another.

A. Use generic forms [*a(n)*, Ø+ plural, *the* + singular]

A solar panel *is a packaged interconnected assembly of solar cells.*
The solar panel *is used as a component in a larger photovoltaic system to offer electricity for commercial and residential applications.*
Solar panels *use light energy (photons) from the sun to generate electricity through the photovoltaic effect.*

B. *The* + repeated noun

A desalting device *essentially separates saline water into two streams: one with a low concentration of dissolved salts and the other containing the remaining dissolved salts.* ***The device*** *requires energy to operate and can use a number of different technologies for the separation.*

C. Use acronyms

A light-emitting diode (LED) *is a semiconductor light source.* ***LEDs*** *are used as indicator lamps in many devices, and are increasingly used for lighting. The color of* ***an LED*** *is determined by the semiconductor material, not by the coloring of the plastic body.*

2. This/These + repeated noun/superordinate

By using a this/these or such (a) plus the exact term or a **superordinate**.

Tires that are fully worn out can be re-manufactured to replace the worn tread. ***This process*** *is known as retreading or recapping.*

3. Demonstrative pronoun (this + Ø)

Use **'bald' this** to refer back to an entire idea or sentence.

Tires that are fully worn out can be re-manufactured to replace the worn tread. ***This*** *is known as retreading or recapping.*

4. Repetition using pronouns (it/ they)

By substituting a recently topical noun with ***it/they***.

Modern tires *are fabricated from rubber and fabric along with other compound chemicals.* ***They*** *consist of a tread and a body.*

Task 6

The following texts are annoying to read because they tediously repeat the same nouns and noun phrases over and over again. Which of the above strategies would you use to avoid this?

A.

[1]**A mobile phone** is an electronic device used for full duplex two-way radio telecommunications over a cellular network of base stations known as cell sites. [2]**A mobile phone** differs from cordless telephones, which only offer limited telephone services through a single base station attached to a fixed land line, for example, within a home or an office. [3]**A mobile phone** allows **a mobile phone's** user to make and receive telephone calls to and from the public telephone network, which includes other mobiles and fixed line phones across the world. [4]**A mobile phone** does this by connecting to a cellular network owned by a mobile network operator.

B.

[1]In the Multi-Stage Flash Distillation (MSF) process, **seawater is heated in a vessel called the brine heater**. [2]**Heating the seawater in a brine heater** is generally done by condensing steam on a bank of tubes that carry seawater which passes through the vessel. [3]**The seawater heated in the brine heater** then flows into another vessel, called a stage, where the ambient pressure is lower, causing **the seawater heated in the brine heater** to immediately boil. [4]The sudden introduction of **the seawater heated in the brine heater** into the chamber causes **the seawater heated in the brine heater** to boil rapidly, almost exploding or flashing into steam.

C. [1]***Desalination technology*** **has been extensively developed over the past 50 years** to the point where ***desalination technology*** is routinely considered and reliably used to produce fresh water from saline sources. [2]**The extensive development of desalination technology over the past 50 years** has effectively made possible the use of saline waters for human consumption. [3]**The cost to desalinate saline water** can be significant because of **desalination technology's** intensive use of energy. [4]However, in many areas of the world, **the cost to desalinate saline water** is less than other alternatives that may exist or may be considered in the future.

D. [1]**The ideal desalination system** should be more than economically reasonable in the study stage. [2]**The ideal desalination system** should work when **the ideal desalination system** is installed and continue to work and deliver suitable amounts of fresh water at the expected quantity, quality, and cost for the life of a project.

E. [1]**A model** is an abstraction of ***a real system***. **A model** is **a representation of *the objects within a real system*** and the rules that govern the interactions of the objects within a real system**.**
[2]**A representation *of the objects within a real system*** may be concrete, as in the case of the spaceship or flight simulator, or **a representation *of the objects within a real system*** may be abstract, as in the case of the computer program that examines the number of cashier stations needed in a supermarket.