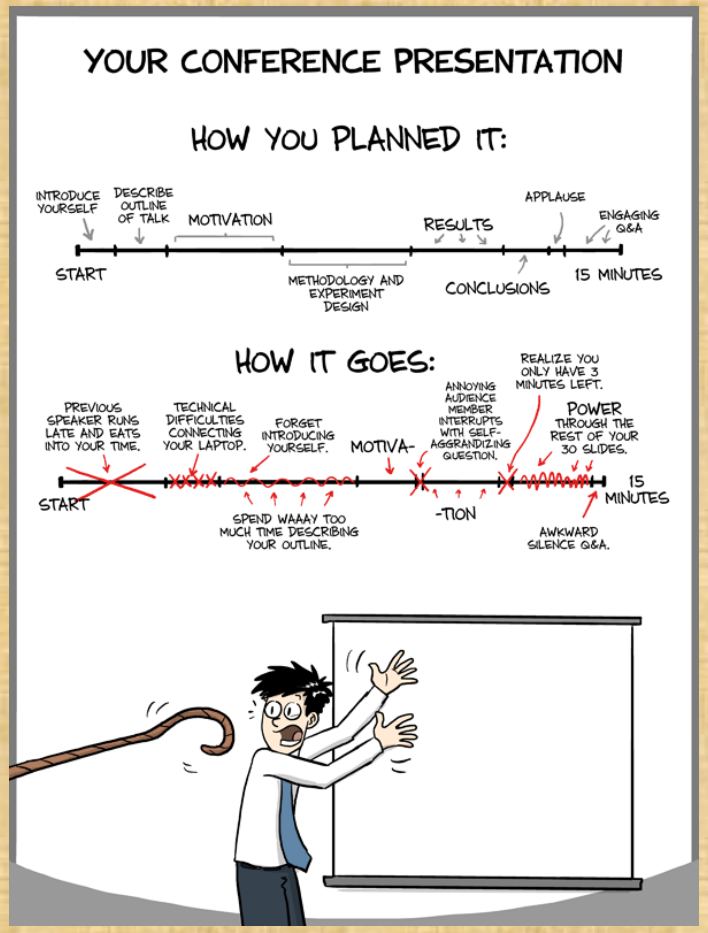
Introduction to English for Scientific Communication

Lesson 2



Submit Homework 1

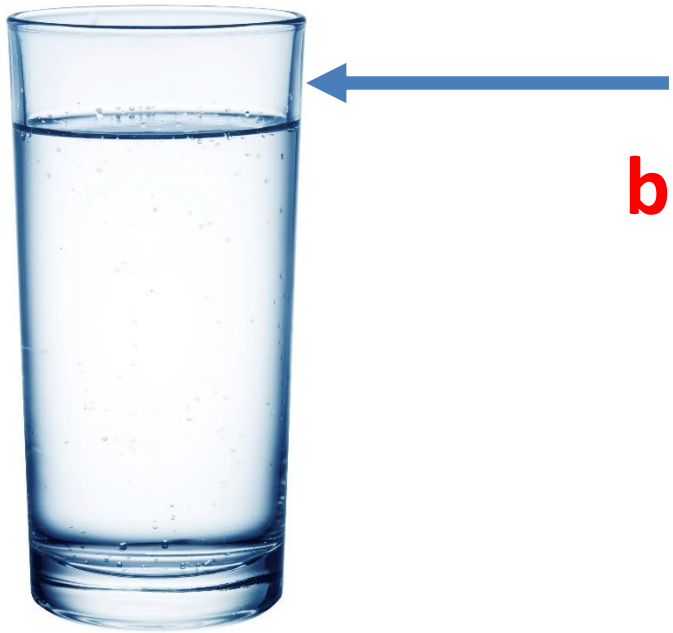
If you haven’t submitted Homework 1. Do it now!

Review - The Basic Rules of Using Articles

	Specified	Unspecified
Countable	The	A (or plural)
Uncoun-table	The	(nothing)

Countable vs. Uncountable

Rule: A noun is countable if and only if that to which it refers possesses a boundary.



The glass is the boundary of the water

Equivalent Condition

A thing possesses a boundary if and only if it possesses a well-defined (concrete or abstract) form (e.g. an apple, a theory). Something that possesses the potential to take many forms itself is formless and hence possesses no boundary (e.g. water, behavior).

Specified vs. Unspecified

We regard a noun as specified if at the point in which it appears, the reader has sufficient information to uniquely identify it.

Review - The Basic Rules of Using Articles

	Specified	Unspecified
Countable	The	A (or plural)
Uncoun-table	The	(nothing)

Review – Uncountable ‘the’

Cases where ‘the’ is necessary.

1. There is water on the table. The water is in a green jug
2. There is furniture in the house. However, the furniture doesn’t match the style of the house.
3. There is fruit in a bowl. The fruit looks really tasty.

Review – Uncountable (nothing)

1. Water is a chemical compound with the chemical formula H_2O. Water is a liquid at standard ambient temperature and pressure.

A few more difficult examples

1. We ignore *** details of *** frictional interaction.
2. This result provides us with *** understanding of *** more complicated case.
3. Thus, *** behavior derived above is described by *** following equation: A = B.
4. *** quantum mechanics continues to provide interesting philosophical puzzles.

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SPECIAL TOPIC 2

by

Most common type of mistake:

Use of by in passive sentences to introduce a “tool” used for some purpose.

Simple Example

“The talk was presented by powerpoint.”

Example 1

This equation was derived **by** the RG method.

Example 2

In the early 1960s, similar effects were discovered by experiments on gel systems.

Example 3

This theorem can be proved by the argument given in Sec. 2.

SPECIAL TOPIC 3

conserve, preserve, maintain, retain

We should preserve the meat in the freezer

so we can have a BBQ at the weekend

Preserve

1. The question of why this symmetry is preserved has not been answered.

2. The arrangement of the balls on the grid is preserved.

The main thing to remember about *preserve* is that it is used with regard to ***existence*** only. Also, note that no agent is needed to cause the preservation.

To maintain their great weight …

Sumo wrestlers must eat a lot

Maintain

3. A constant flux is maintained during the operation by appropriately altering the driving force.

4. The equilibrium state is maintained.

The verb *maintain* expresses the idea of preventing change. It also implies that some agent actively carries out this process. Further, it is usually used with regard to a state or process.

Endo, passes the ball to …

Honda!

Honda retains the ball

and continues to retain the ball

Retain

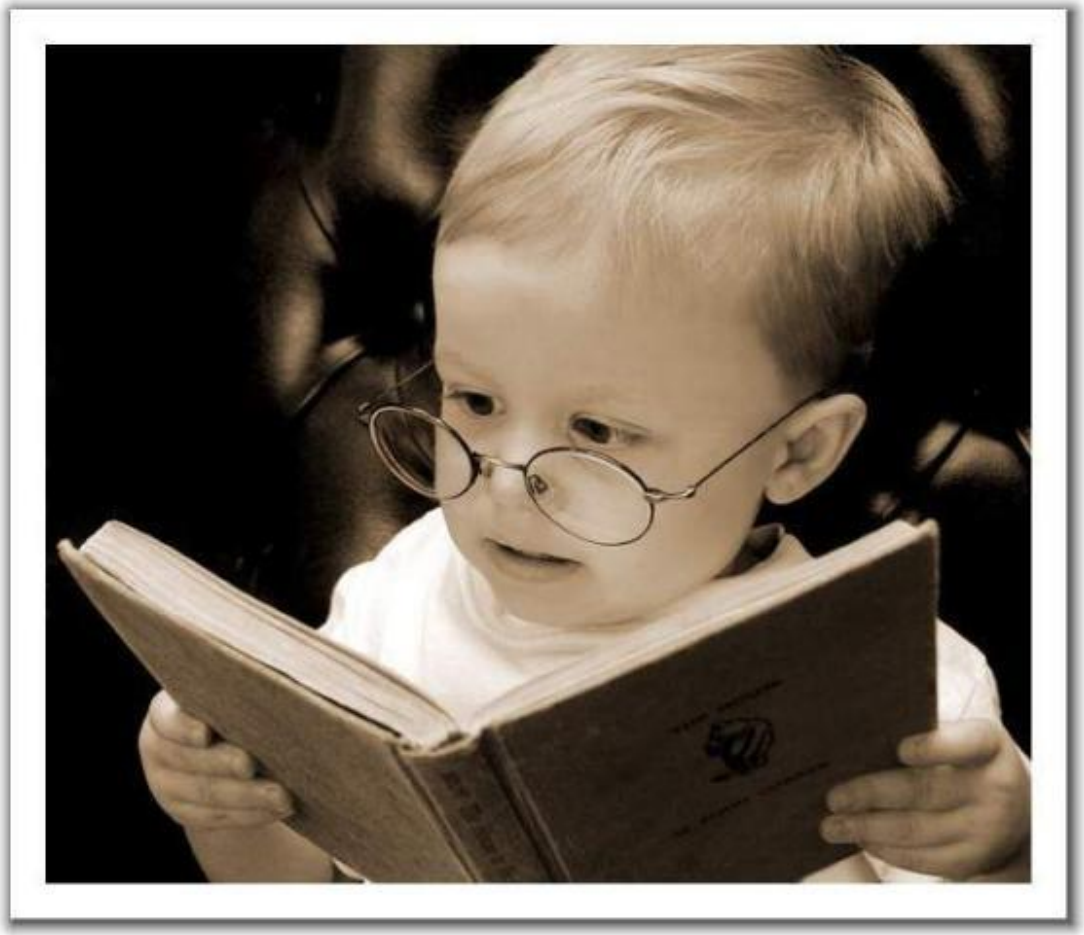
5. This new form of the theory retains several features of the original form.

6. The colloid cannot retain its shape as the salinity of the water is altered.

The main idea of *retain* is one of continued possession. In fact, in most situations, *retain* can be replaced by *continue to possess* with no change of meaning. Also note that no agent is needed for this purpose, but in some cases, such an agent may exist.

We should conserve our energy…

as we have a long day of study tomorrow



http://test-taking-tips.net/wp-content/uploads/2012/10/shhhhh-quiet-everyone-study-wallpaper.jpg

Conserve

7. In this case, the energy of the system is conserved.

8. In their model, the total angular momentum is not conserved.

Conserve is similar to *maintain* in that it expresses the idea that some thing is unchanged. However, it differs in two important ways. First, the action expressed by *conserve* does not require an agent. Second, while *maintain* generally is used with regard to a process or state, *conserve* is usually used with regard to a quantity.

THE PARAGRAPH

Why are paragraphs important?

The paragraph is a thing of beauty. This beauty stems from the fact that the sentences in a paragraph are all related to one topic. This helps greatly when writing logical work. Good paragraphing (the construction of paragraphs) will make it very easy for a reader to understand your points. If you believe that logic and clarity are beautiful, then you should also think paragraphs are beautiful.

The structure of a paragraph

The paragraph has the following structure:

1. The topic sentence
2. Supporting points
    a. Supporting point 1 (+ Supporting detail)
    b. Supporting point 2 (+ Supporting detail)
    c. Supporting point 3 (+ Supporting detail)
3. Concluding Remark

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The topic sentence

- The topic sentence informs the reader of the topic of the paragraph.

- In the paragraph, it is only possible to discuss ideas that are connected to this topic (make sure you keep the unity of the paragraph)

Supporting points

- Here you give information about the topic of the paragraph
- These support or expand on the idea in the topic sentence
- In these sentences, you can use facts and figures to support your ideas

Concluding Remark

- This is optional (often used for long paragraphs or paragraphs with difficult content)
- This provides a conclusion for the paragraph
- This is used to express the importance of the ideas in the paragraph.

Example Paragraph

The name atom, which comes from Greek, means indivisible, i.e. something that cannot be divided further. The concept of an atom as an indivisible component of matter was first proposed by early Indian and Greek philosophers. Chemists supported this idea by showing that certain substances could not be further broken down by chemical methods. Later, physicists discovered subatomic components and structure inside the atom, thereby demonstrating that the 'atom' was divisible. Now, through our understanding of physics, we know that the atom is far from indivisible.

From Wikipedia – Atom (some edits by A. Hillier)

The Topic sentence

The name atom, which comes from Greek, means indivisible, i.e. something that cannot be divided further.

- What is the topic?

The Topic sentence

The name atom, which comes from Greek, means indivisible, i.e. something that cannot be divided further.

- The topic is “atom means indivisible”.

Supporting Points

The concept of an atom as an indivisible component of matter was first proposed by early Indian and Greek philosophers.

- This tells us where the idea that an indivisible state of matter first originated

Chemists supported this idea by showing that certain substances could not be further broken down by chemical methods.

- This tells us that chemical limits exist for breaking down matter

Later, physicists discovered subatomic components and structure inside the atom, thereby demonstrating that the 'atom' was divisible.

- This tells us that in fact the atom is divisible

Concluding Remark

Now, through our understanding of physics, we know that the atom is far from indivisible.

- This sentence relates directly to the topic, by showing that the idea presented in the topic sentence was wrong.

Now your turn

Please write your own paragraph on atoms (part 3 of Homework 2).

Distribution of Homework 2

Due on 22nd April before lecture starts