

Section 3. Methodology as an IMRD component

Unit 2. Methodology:
Grammar peculiarities

Today we are going to talk about Grammar peculiarities of the Methodology section. This unit will cover three language areas which are important in the Methodology:

- Passive voice and Tenses
- Use of the articles “A” and “The”
- Adverbs and adverb location

First, let's consider Tense use and Voice instances in the sample section of the article. Try to find the use of the Passive Voice in the model. Which Tense is used? Why? Now, when you are back, let's count the instances of the Passive Voice in the given model. Did you identify them all?

As for the Tenses used in the sample, we can conclude that Past Simple Passive predominates. Why? To answer this question, let's consider these two sentences on the slide. An obvious answer would be: They differ in Tenses.

But does the Tense choice matter here? Of course, it does.

Present Simple indicates standard procedures as in the sentence on the slide: “A flexible section is inserted in the pipe.” Here, Present Simple shows what is normally done or how a piece of equipment is normally constructed. **Past Simple**, on the other hand, **describes what the authors did by themselves**, as in the sentence: “A flexible section was inserted in the pipe.”

It is conventional in this section to use the passive structures.

Passives used **in formal writing** are normally of this type, i.e. agentless passives. However, because the agent is not given the only way that the reader can separate what is normally done (sentence A from what the authors did themselves, sentence B is the correct tense).

If the tense is used incorrectly, the author's work may become confused with the standard procedures he or she is describing. Look at this example: "Two metal samples *are* placed in the alloy furnace. A heating element *is* then activated by an electric current, and the temperature is controlled to obtain the desired melting point. The molten metal *is* poured into a mold and allowed to solidify. The resulting alloy *is* extracted from the mold and cooled to room temperature. The composition of the alloy *is* confirmed using spectroscopic analysis. The alloy *was* subjected to X-ray diffraction to determine its crystal structure. The resulting diffraction pattern was compared to a database of known crystal structures to identify the alloy."

What was the writer's innovation? — X-ray diffraction was the significant innovation of the writer's research team but the only way the reader knows this is because of the change in tense from Present Simple passive to Past Simple passive "was subjected".

Let's analyse the following sentence: "Samples for gas analysis were collected using the method described by Brown (1999), which uses a suction tube." How can we **differentiate what the author did from what other researchers did** if they are referenced in the paper?

To make it clear and easy for the reader to identify whose contribution is emphasized is **by marking it with words like:** "*In this study*, the samples were collected using a suction tube." Or "*In our experiment* the samples were collected using a suction tube." Or with careful references to the procedure used by other researchers at the appropriate place in the sentence. For example: "*In Brown (1999)* the samples were collected using a suction tube."

Let's have a look at sentence 2 of our sample Methodology section. "The sites were selected from the Norilsk area, which is located in the north of Russia and has been frequently used to distinguish the composition of different alloys. We can see three different tenses in one sentence.

Why is that?

Past Simple Passive "were selected" defines **what the writer did**.

Present Simple Passive "is located" **denotes the fact** as this site is situated in that place.

Present Perfect Passive is used here to **justify the choice** of the site as it was and is still relevant.

Another topic to consider with regard to the Methodology section is articles. In the English language **any singular countable noun needs an article, or determiner**. But which noun is **countable**? These are nouns like: *table, desk, bottle, furnace*. We **can count** them and thus they can be **made plural**. What is an **uncountable** noun then? These are nouns that denote *liquids* (water), *materials* (iron), *abstract notions* (death, industry). We **can't count** them and **put them into plurals**.

But look at these examples:

There have been three *deaths* this year from pneumonia.

Many *industries* rely on fossil fuels.

Some *steels* are used in the manufacture of medical instruments.

The word "death" is an abstract noun, but here it is used in plural. "Industry" is an abstract noun but here is used in plural. "Steel" denotes material but here it is used in plural.

Why is that?

It is because some nouns, if used in general, are uncountable, like industry, or steel. But when they are used to denote something particular or types, they can be made countable and thus — plural. The definite article “The” shows that there is only one possible referent, like in the examples on this slide: “They all imply ‘the only’ referent possible.”

An indefinite **article “A”** implies *it doesn’t matter, you don’t know or the reader doesn’t know which thing/person is being referred to.*

Have a look at these two sentences:

(A) A 35 ml brown glass bottle was used to store the liquid.
It works on the same principle as a combustion engine.”

In the sentence A — A implies that “It doesn’t matter which 35 ml brown glass bottle was used.”

In the sentence B — A means that “It doesn’t matter which combustion engine.”

How can you explain the difference between these two sentences?

A connection in sentence A implies that “There may possibly be a connection between the two but if there is, we cannot see it.” While the connection in sentence B means that “There is definitely a connection between the two but we may not be able to see it because of this effect.” Have one more try to guess how the choice of articles changes the meaning. Let’s read this pair of sentences:

(A) The nodes should be attached to **ø** two adjacent receptor sites.

(B) The nodes should be attached to **the** two adjacent receptor sites.

Zero article in sentence A means that “There are many receptor sites and any two adjacent ones will do.” And “the” in sentence B implies that “There are only two receptor sites.”

The last thing to consider today is the use of adverbs. “Look at the dog with one eye.” What makes it difficult to comprehend the meaning?

Does it mean have a quick look (using one eye) or that the dog has one eye only?

Another example: “He gave a lecture about liver cancer at the hospital last January.” What makes it sound ambiguous? Was the lecture in the hospital — or the cancer? Did the lecture refer to cancer cases occurring in January? Did the lecture itself occur in January?

How can this ambiguity in meaning be avoided?

If the adverb relates to the whole sentence (i.e. clearly, last January, as a result) then it is a good idea to **put them at the front of the sentence**: “Last January he gave a lecture about liver cancer at the hospital.” If that did not help and the sentence still sounds ambiguous, then **it needs to be broken down into units, each with its own adverb**: “Last January he gave a lecture at the hospital; his subject was liver cancer.”

To sum up, today we have learnt that tenses make difference and writers use Past Simple to describe what they did or what was done before with proper referencing. Articles “a” or “the” can change the meaning and adverbs can confuse the reader and thus need to be put in a sentence with care.