

A? How do you see the world?

Earlier, you have learned that **where** you place ideas in the sentence, either *before* or *after* the verb, is important because it signals to your reader whether they should interpret this information as **old** (*familiar*) or **new** (*unknown*) information. You also learned that you can make it easier for readers to follow your thoughts if you focus on one, single topic per paragraph. You can maintain this topical focus by choosing a single item of **old** (*familiar*) information and keeping this same information before the verb, preferably in the *subject* position, across all of the sentences within the same paragraph. These two important concepts, what we see as being familiar/unfamiliar or in focus/ out of focus says a lot about how we view the world.

In English, this view of the world and how the reader should interpret reality is signaled by marking all nouns (concepts and objects) with a set of words that we call **determiners**. These determiners comprise four classes:

- A. **Definite** (*the*) and **indefinite** (*a/an, zero*) **articles**,
- B. **Demonstrative pronouns** (*this/ these, that/those*),
- C. **Possessive pronouns** (*my, their, its, the professor's*) and
- D. **Quantifiers** (*all, many, most, three, few, little*).

A. Definite and Indefinite Articles

In order to successfully use the English article system, you need to understand two important meanings that can be communicated through the article system: **Countability** and **Reference**.

COUNTABILITY

- 1 **Countable Nouns**
- 2 **Non-count Nouns**

REFERENCE

3 **NON-UNIQUE** (*generic*) **REFERENCE**

3.1 **Countable nouns**

- 3.1.1 [Generic usage](#)
- 3.1.2 [Human generic](#)
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3.2 **Non-count nouns**

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4 **UNIQUE REFERENCE**

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4.3 **Pre-modification**

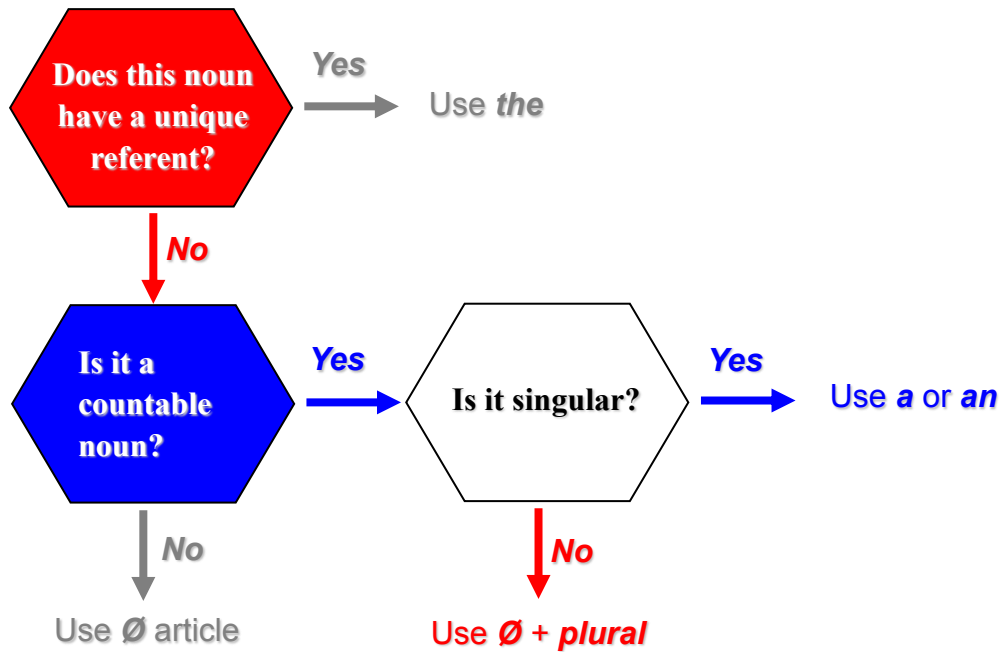
- 4.3.1 [Pre-modified common noun](#)
- 4.3.2 [Superlative adjective](#)
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4.4 **Special nouns**

- 4.4.1 [Common physical features of our world](#)
- 4.4.2 [Time periods](#)
- 4.4.3 [Model numbers](#)



3. Non-unique Reference



3.1 Countable Nouns

3.1.1 Generic → a(n) or ∅ + plural

This **noun** is **countable** and refers to this thing in a 'general way'. Therefore, the noun needs either (1) an indefinite article (**a /an**) in its **singular form**, or (2) **no article (∅)** in its **plural form**. (See also **first mention**). Note, however, that academic English prefers the plural form; unfortunately, Finnish seems to prefer the singular form.

| | |
|--|--|
| | Nanotechnology offers both ∅ opportunity and ∅ challenge to the scientific and technological community. |
| | Nanotechnology offers both an opportunity and a challenge to the scientific and technological community. |
| | Nanotechnology offers both ∅ opportunities and ∅ challenges to the scientific and technological community. |

To signal that you are **not** referring to a particular instance of a thing, but rather talking in a “**general way**” about it, use the plural form **without** the definite article **the**.

| | |
|--|--|
| | The Computer S have changed the way we work. |
| | ∅ Computer S have changed the way we work. |

3.1.2 Human generic → [a(n), Ø + plural, or the]

You can signal that are not referring to any particular person, but rather to the group as a entire class, by using **a(n)** and **the** with the singular form of the noun, or no article (Ø) with **plural form**.

Debugging is the cornerstone of being **a programmer**. **A programmer** who cannot effectively debug is blind.

After the design process is complete, it is the job of **the programmer** to convert that design into a logical series of instructions that the computer can follow.

Ø **Computer programmers** write, test, and maintain the detailed instructions, called programs, that computers must follow to perform their functions.

3.1.3 Generic device → the

Use "the" to refer to types of **inanimate objects**, most commonly **devices** and **machinery**. Note how in the examples below, the writer is not referring to any specific instance of the *N91 model* or the *airplane*, but rather to a **single "type"** of *phone* or *airplane*.

The Nokia N91 delivers both a fantastic music experience and cutting-edge phone features

The Airbus A380 allows for a spacious cabin with 50% more floor space than that of its closest competitor.

3.2 Non-count Nouns

3.2.1 Generic Non-count → Ø

If a noun is **uncountable**, you can signal that you are not referring to a particular instance of this concept, but rather talking in a *general* way about it, by not using the definite article 'the'. Notice the difference between **generic** and **unique** reference to the uncountable noun *speed*.

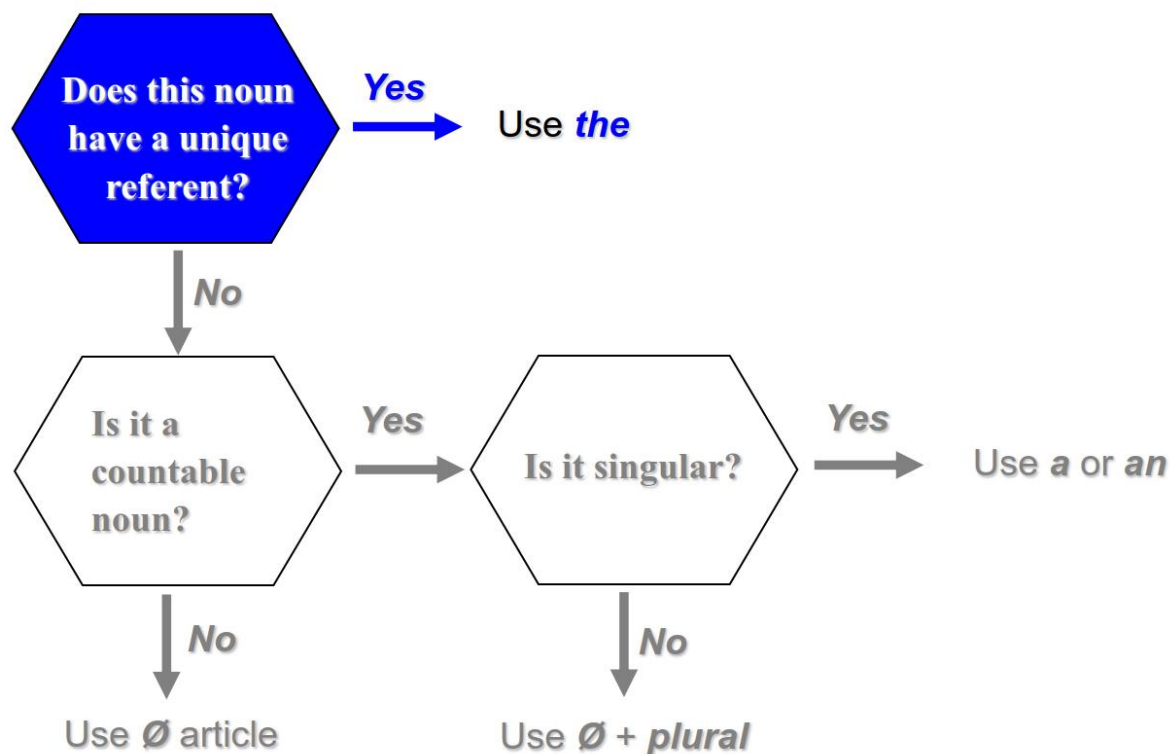
Generic reference:

Ø **Speed** is the term used to describe the distance travelled in a unit of time.

Unique reference:

The speed of an object refers to how fast an object is moving and is usually expressed as the distance traveled per time of travel.

4. Unique Reference



4.1 Unique Reference (Contextual)

4.1.1 Second mention → [the]

It is important to remind your reader that a noun is "given" or "old" information and not a new or different instance of the same kind of thing. If you are mentioning a thing or concept for the second time, signal this by using the definite article "*the*".

A new surgery technique has been developed that enables surgeons to see tumors and other pathologies that were invisible using previous methods. *The new method* incorporates specific filters in the endoscope light system, allowing surgeons to see the tiny amounts of fluorescent light emitted by all living human tissues when illuminated, a phenomenon called 'autofluorescence.'

In addition to using the definite article, another common way to signal that information is already known to a reader is to use a pronoun or *this* + superordinate. (see also [Second mention](#).)

A new surgery technique has been developed that... *This new method* incorporates...

4.1.2 Implied Uniqueness → [the]

Use "the" to indicate that something is unique because it forms a *typical* part or component of another entity. For example, using "the" in the example below implies that these are typical parts of an engine.

- ☹️ The area between **a piston** and **a cylinder liner** and between **Ø piston rings** and **a cylinder liner** is a large source of friction in internal combustion engines.
- 😊 The area between **the piston** and **the cylinder liner** and between **the piston rings** and **the cylinder liner** is a large source of friction in internal combustion engines.

Similarly, the definite article "the" is typically used to describe parts of the **body** or **internal organs**:

The brain operates more like a social network than a digital computer, with neurons communicating to allow learning and the creation of memory.

4.1.3 Shared knowledge → [the]

Use the definite article to refer to nouns when you are sure that your readers can uniquely identify the concept from their knowledge of the field, subject matter, or expected content of the document that they are reading. In such cases, we say that the noun is definite because of **shared knowledge**. For example, in the two versions of the same text below, the writer could use the **indefinite form** "a joint mission" for a **lay audience (non-experts)**, whereas the same text would require the **definite form** "the joint mission" when the writer assumes that the reader will know that the reference here is to a particular mission (e.g. The LISA Project)

Reader lacks prior knowledge:

A joint mission of NASA and ESA will launch three spaceships in orbit around the sun during the next decade.

For "experts" in the field:

The joint mission of NASA and ESA will launch three spaceships in orbit around the sun during the next decade.

In academic writing, using the definite article "the" because of shared knowledge is primarily used when referring to concepts that expert readers assume will be discussed, for example, **standard research functions** *variables, protocols, and procedural steps*, or **default subjects** that the readers expects as part of the study.

Variables normally measured:

Biodegradable plastic composites were subjected to prolonged soaking and freezing treatments to assess the effects on **the mechanical performance**.

Default subjects:

The results confirm that the Halai instrument system can rapidly measure differences in the particle size and shape characteristics of different minerals.

4.2 Unique Reference (Post-modification)

4.2.1. Descriptive “of” → [the]

English uses the definite article, *the*, to signal that there is something unique about the noun (or *noun phrase*) that it precedes. One way to make a noun unique is to give extra description that further identifies and narrows it down to only one “kind”. Such identifying text that comes after the noun is often referred to as *identifying postmodification*. The most common types of postmodification in academic writing are the **of-genitive** and **defining relative clauses** (clauses that begin with *that*, *who*, or *which*). (See also *of-genitive (the)* and *Relative clauses (the)* for further examples, as well as exceptions).

Post-modification by *of-genitive*

- ☹️ While **∅ energy density** of hydrocarbon fuels used in micro heat engines is very high, **∅ output power** of these devices is too high to be of practical use for low-power wireless sensor nodes.
- 😊 While **the energy density of hydrocarbon fuels** used in micro heat engines is very high, **the output power of these devices** is too high to be of practical use for low-power wireless sensor nodes.

EXCEPTIONS:

Partitive *of* → [a(n)]

Although most *of-genitive* are **descriptive** and therefore require the definite article “*the*”, **partitive of-phrases** take an indefinite article (*a/an*) and are used, like *counters*, to make an *uncountable noun* countable.

Many studies suggest **∅ red wine** is good for your health.

Many studies suggest **a glass of red wine** is good for your health. In fact, some even advise patients with some heart conditions to drink **several glasses of red wine** per day.

With *uncountable*, the **partitive of-genitive** can be used to express **a type of**:

- ☹️ Copyright is **a protection** provided to the authors of **original works of authorship** including literary, dramatic, musical, artistic, and other intellectual works.
- 😊 Copyright is **a form of protection** provided to the authors of **original works of authorship** including literary, dramatic, musical, artistic, and other intellectual works. (*uncountable noun*)

Another common function of the **partitive of-genitive** in academic and scientific writing is to report **numerical results**. Note that in the examples below, the **variable** is labelled in red. (See also *Avoiding weak verbs*)

- ☹️ The **thickness** of the copper cladding on both sides of the dielectric **was** 35 mm.
The **return loss** for the measured results of this circuit **was** less than 20 dB.
- 😊 The copper cladding on both sides of the dielectric had **a thickness of** 35 mm.
The measured results of this circuit demonstrate **a return loss of** less than 20 dB.

4.2.2 Defining relative clauses → [the]

Post-modification by restrictive relative clauses

- ☹️ Although many simulations were performed today, only **∅ simulation** that was carried out this morning was successful.
- 😐 Although many simulations were performed today, only **the simulation that was carried out this morning** was successful.
- 😊 Although many simulations were performed today, only **the simulation carried out this morning** was successful.

4.2.3 Class + term → [the]

Use the the definite article "the" when the **first** of two nouns *classifies* or *defines* the second noun (**CLASS + TERM**), and the **second noun** provides a *name* for the concept. Notice how reversing the order of the two words changes the form of these phrases into a definition, shown in parentheses. (See also [Superordinate + Term](#))

Marijuana is considered to be a major drug of abuse. The drug can be smoked or eaten, leading to psychoactive effects from **the compound tetrahydrocannabinol** (THC).

(Definition: *tetrahydrocannabinol is a compound*)

By **the year 2007**, the sun will be shining directly over Uranus' equator, thus producing more evenly distributed sunlight and the ability to see features at all latitudes on Uranus.

(Definition: *2007 is a year*)

Although **the cell phone manufacturer Nokia** is rooted in Finland, it sells cellular phone products virtually everywhere on the globe.

(Definition: *Nokia is a manufacturer of cell phones*)

In the eye, the rods contain **the photopigment rhodopsin**.

(Definition: *Rhodopsin is a photopigment*)

4.3 Unique Reference (Pre-modification)

4.3.1 Pre-modified common nouns → [the]

Named places, processes, models and institutions are often unique, especially if the second part of the name is a **common noun**. Common nouns describe the **class** of things that the concept belongs to. Note in the examples below how the last word in each expression is a common noun, which if not specified by the preceding word (i.e., *pre-modifier*) would have an unlimited number of possible referents.

| | | |
|-----------------------|--------------------------------|---------------------------|
| The Pacific Ocean | The European Union | The automotive industry |
| The Vantaanjoki River | The Java collections framework | The European Space Agency |
| The Baltic Sea | The Document Object Model | The Physics Department |
| The Sahara Desert | The Sony Corporation | |

4.3.2 Superlative adjective → [the]

When two galaxies collide, the merger of their supermassive black holes will produce **the largest burst** of gravitational radiation in the universe.

Fuel cells can achieve 40 to 70 percent efficiency, which is substantially greater than the 30 percent efficiency of **the most efficient internal combustion engines**.

4.3.3 Ordinal Adjective → [the]

The first fuel cell was developed by the Welsh scientist Sir William Robert Grove in 1843.

The second stage involves pilot plant production for 6 months to 2 years or more.

4.3.4 Restrictive adjectives → [the]

Certain adjectives can restrict or limit a noun to only one meaning and therefore require the definite article **the** to signal this uniqueness.

A joint mission of NASA and ESA will launch three spaceships in orbit around the sun during **the next decade**.

The specific requirements of the system are listed in **the following section**.

Nuclear energy is **the only large-scale, cost-effective energy source** that can reduce CO² emissions while continuing to satisfy a growing demand for power.

4.4 Unique Reference (Special nouns)

4.4.1 Common physical features of our world → [the]

A joint mission of NASA and ESA plans to launch three spaceships in orbit around **the sun** during the next decade.

When two galaxies collide, the merger of their supermassive black holes will produce the largest burst of gravitational radiation in **the universe**.

To better understand **the Earth's** weather, scientists study **the troposphere**, the atmospheric layer that touches **the Earth** and extends about six miles up.

4.4.2 Time period → [the]

Use the definite article "the" when the noun refers to a specific period in time. Such nouns include **time orientation** *the past, the present, the future*, as well as those representing specific time periods, e.g., **decades** (*the 1990s*), **centuries** (*the 21st century*), **seasons** (*the autumn/ winter/ spring/ summer*), and **time of day** (*the morning/ afternoon/ evening*). See also [Special Nouns](#).

Every day, thousands of kilograms of Carbon Dioxide are released into the atmosphere. Unfortunately, this situation will intensify in **the future** due to the increasing number of motor vehicles.

During **the 1970s**, NASA worked with several universities to develop new aerodynamic designs that inspired newer shapes for heavy-duty vehicles, resulting in fuel savings of 20 to 24 percent.

Plural/Collective nouns → [Ø]

Some nouns in English are plural but appear to be singular. Examples include *data*, *spacecraft*, *staff*, *rationale*, *personnel*, *phenomena*, and *criteria*.

Although **data** looks like it is singular, it is actually the plural form of **datum**. This singular form is very rarely seen today in academic texts. *Data* is unique in that it can be used as either a **countable** or **uncountable** noun:

1. As a **plural, countable noun** (like *devices*) and therefore takes a **plural verb** and **plural determiners** (e.g., *these*, *those*). Later, in the same text, you can refer to *data* using the **plural pronoun** *they*.

Plural, countable noun (more common!)



The **data are** also used by the private sector for market analysis.

All test **data were** stored on a computer.

These data indicate that serotonin can activate the the prefrontal cortex of the brain.

2. As an **abstract mass noun** (like *information*), it can also take a **singular verb** and the **singular determiner** (e.g., *this*), as well as noncount quantifiers (e.g., *much*, *little*, *no*). Like other noncountable nouns, *data* you can also refer back to it using the **singular pronoun** *it*. In scientific writing, the plural construction is more common, most likely due to the style requirements of many academic journals, but note the exceptions below!

Singular, uncountable noun (less common)



The **data is** also used by the private sector for market analysis.

No data was received, though the spacecraft signal indicates the Mars lander is still operational.

This data includes information about the user's IP address and the browser's user-agent string.



However, note that *data* cannot be used with numbers, nor can it be used with countable quantifiers (e.g., *many*, *several*, *few*)



~~Few~~ **data are** available on the cost, efficiencies, and availabilities of integrated coal-to-hydrogen/power plants with sequestration options.

Buffer overflow attacks occur when too ~~many~~ **data are** written into a buffer.



Little data is available on the cost, efficiencies, and availabilities of integrated coal-to-hydrogen/power plants with sequestration options.

Buffer overflow attacks occur when too **much data is** written into a buffer.