

The 1 2 3 of Beautiful Text

Dmed's simple method for effective science writing

abc



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Beautiful text - as simple as 1 2 3

Writing beautiful, logical and 'native-rashi' text is as easy as 1 2 3:

- 1 definition
- 2 requirements
- 3 rules.

Thousands of Japanese scientists have learnt the 1 2 3 method. It's easy to grasp and easy to apply.

Sentences can be written with different structures and syntaxes. You need a way to choose which is best. Use the 1 2 3 method to determine the best structure for every sentence you write.

1 definition - the sentence

To define what a sentence is, let's consider how we measure thought.

Most measurements exist as primary and secondary units. For example, distance is measured in kilometers, meters, centimeters and millimeters. Of these, the meter is the **primary unit** - the others are **secondary**, derived from it.

km
m ← the **primary** unit of distance
cm
mm

Thought also can be measured by units: let's say essay, chapter, section, paragraph, sentence and word. Of these, the **primary unit** of thought is the sentence. The sentence expresses a **single, complete, self-contained thought** (*see the box for the definition of the paragraph).

essay
paragraph
sentence ← the **primary** unit of thought
word

Definition: the sentence expresses a single, complete, self-contained thought.

When you write using sentences to express a single, complete, self-contained thought, your ideas are easily grasped and understood. Readers expect to receive information this way. Your writing meets your readers' expectations, and communication is successful.

In contrast, sentences that express incomplete or multiple thoughts confound the reader, who must disassemble and reassemble the information into single, complete, self-contained thoughts - work that the writer should have done.

the period: an essential mental processing tool

Using your sentences to express a single, complete, self-contained thought is helped by the period. We have all read millions of periods, and our interpretation of them is automatic. But if we could hear how the subconscious mind reads the period, it would say something like this:

"Here is the period, at the sentence's end. The thought is now over. I will consider the thought, and assimilate it with the previous thoughts. I will then take a short mental break, clear my attention, and prepare for the next thought."

The period is a crucial knowledge processing tool, signalling one thought is finished and the next is about to begin.

Structuring each sentence to contain a single, complete, self-contained, completed with a period, is the keystone of perfect communication.

*What is a paragraph?

The paragraph is a **secondary unit of thought** which expresses an **integrated, logically related series of thoughts**.

essay
paragraph ← an **integrated, logically related** series of thoughts
sentence
word

2 requirements

Even the simplest sentence can be written more than one way: **I have a pen. A pen I have.** And ideas can be written in simple or complicated ways. How do we choose the best structure for our sentences, and how much information they should contain? These 2 requirements are the key to effective writing.

requirement 1 - hierarchy of value

The structure of a sentence should reflect the relative importance of the ideas it expresses.

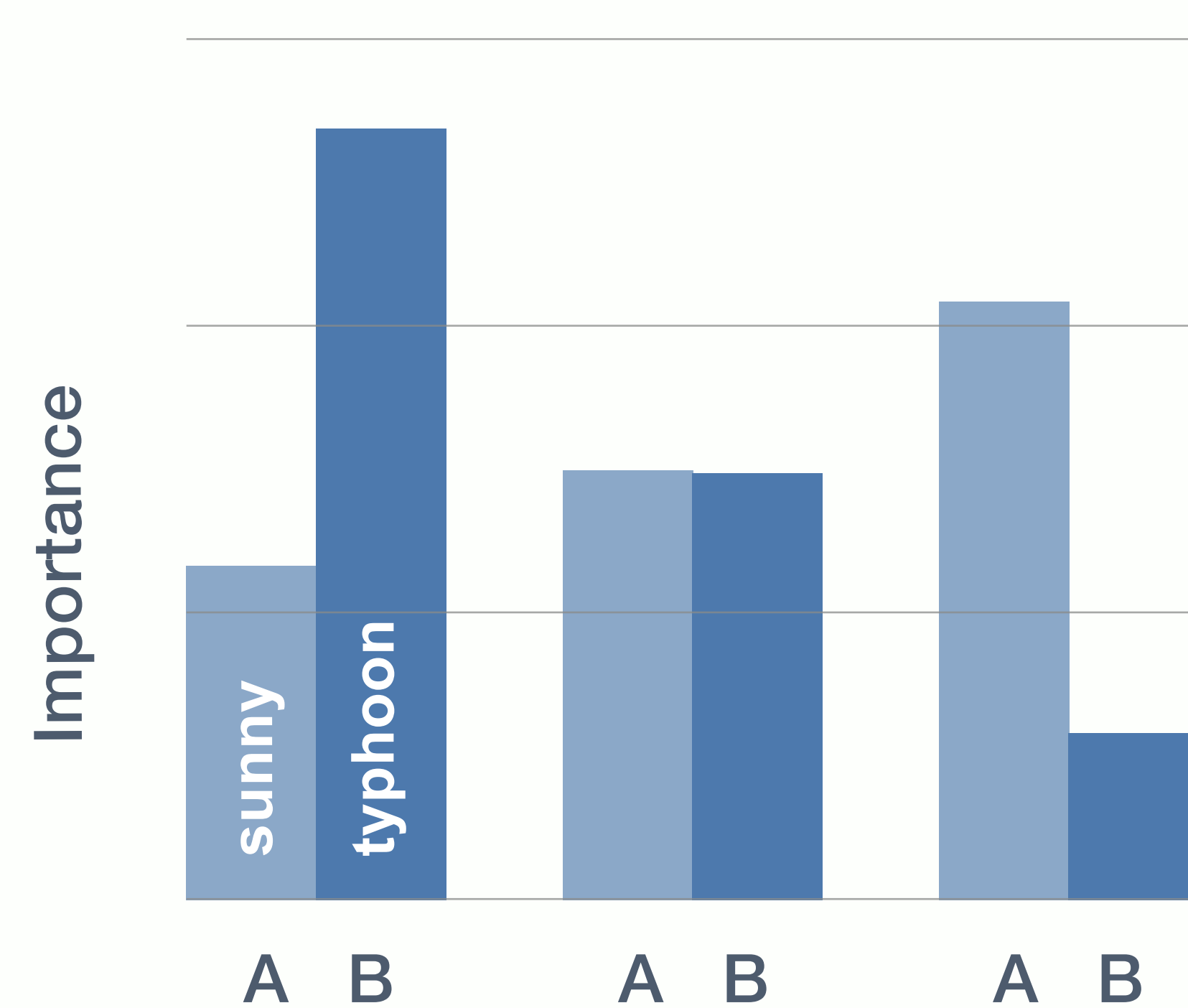
Put the important idea in the important part of the sentence, and the less important idea in the less important part.

Grammatical value should reflect logical value.

Here are two ideas, A and B:

A: Today is sunny
B: A typhoon is coming tomorrow

In most contexts, B is more important than A. Which pair reflects the greater importance of B?



The first pair reflects it; the others get it wrong. If we write them in a sentence, how can we express this hierarchy?

X Although a typhoon is coming tomorrow, today is sunny

No good - less important A is in the main clause...

...and more important B is in a subordinate clause

Grammatical value does not reflect logical value.

✓ Although today is sunny, a typhoon is coming tomorrow.

Good - now A is in the subordinate clause...

...and B is in the main clause

Important B is in the main clause - the more important structure - and less important A is in the subordinate clause - the less important structure.

Grammatical value now reflects logical value.

model of the value of sentence parts

To apply the hierarchy of value requirement, we need to model the value of sentence parts:

1

sentence > clause > phrase > word

A sentence is more important than a clause, a clause is more important than a phrase, and a phrase is more important than a word

2

independent (or main) clause > dependent clause

An independent clause is more important than a dependent clause

3

subordinate clause > relative clause

A subordinate clause is more important than a restrictive or nonrestrictive relative clause

4

noun = verb > adjective = adverb

Nouns and verbs are more important than adjectives and adverbs

5

coordinating conjunctions and the semicolon indicate a coordinate (equal) relationship

The semicolon and the coordinating conjunctions *and*, *but*, *yet*, *for*, *or*, and *nor* connect ideas of equal importance

6

adverbial conjunctions indicate a near-coordinate relationship

The adverbial conjunctions *however*, *thus*, *therefore*, *in particular*, *also* etc. connect ideas of nearly equal importance

7

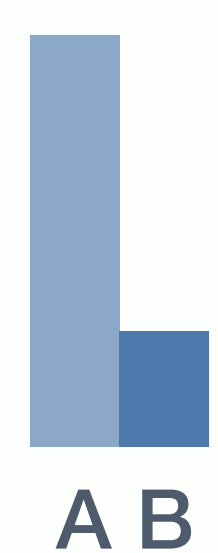
subordinating conjunctions indicate a subordinate relationship

The subordinating conjunctions *although*, *since*, *as*, *because*, etc. connect ideas of unequal importance

using hierarchy of value

Let's apply this model to another case.

A: John is very ill.
B: John is 25 years old.



In most contexts*, A is more important than B. We have many possible sentence structures - how can we express this hierarchy?

John is 25 years old and very ill.

John, who is 25 years old, is very ill.

John, who is very ill, is 25 years old.

John is 25 years old; moreover, he is very ill.

John is a very ill 25-year-old.

Very ill, John is 25 years old.

All these sentences are **grammatically** correct. Looking at the model, however, **only one** satisfies the requirement - model 2:

2

independent (or main) clause > dependent clause

An independent clause is more important than a dependent clause

✓ John, who is 25 years old, is very ill.

More important
A is in the main
clause...

...and less
important B is in a
relative clause

Grammatical value reflects logical value.

Communicating ideas from one mind to another works best when the language reflects the relative importance of the ideas.

*Hierarchy always depends on the context.

subordinate ideas

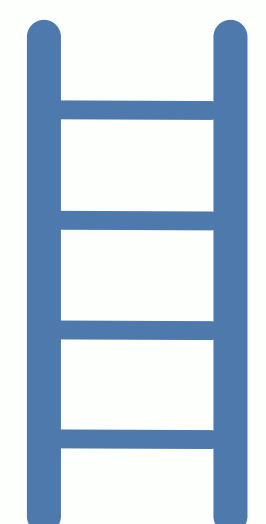


Ideas that have different importance are called subordinate. The range of subordinate relationships is large, from nearly equal to widely different.

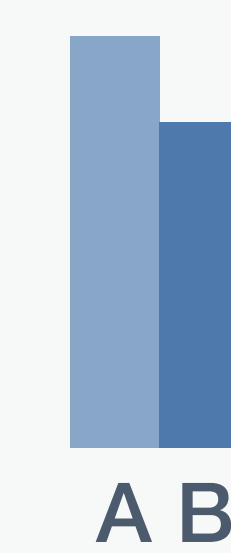
A: The body uses ferrous iron more efficiently than ferric iron.
B: Ferrous iron is the less frequent form in dietary sources.

In your context, let's say A is more important than B. You should **decide how different**, and then **select the structure which reflects that difference**.

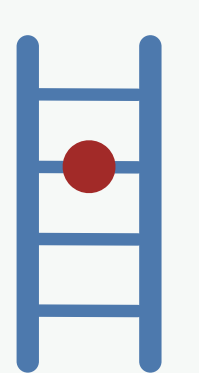
We do this by moving the less important idea **B up and down the ladder of hierarchy**, using the model of the value of sentence parts.



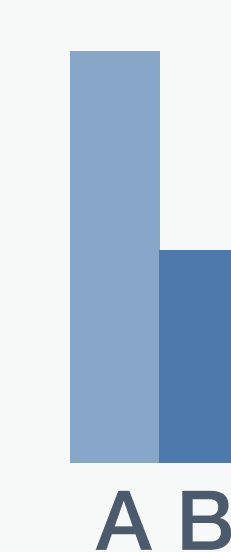
If B is quite important, put it in a subordinate clause.



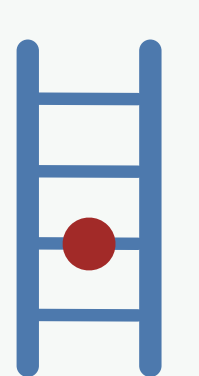
✓ Although it is the less frequent form in dietary sources, the body uses ferrous iron more efficiently than ferric iron



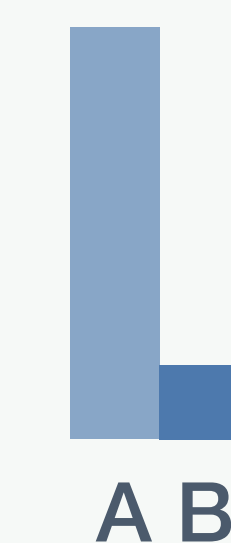
If B is only somewhat important, put it in a relative clause.



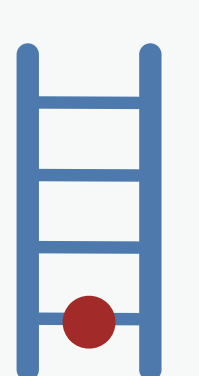
✓ The body uses ferrous iron, which is the less frequent form in dietary sources, more efficiently than ferric iron.



If B is not important at all, put it in a phrase.

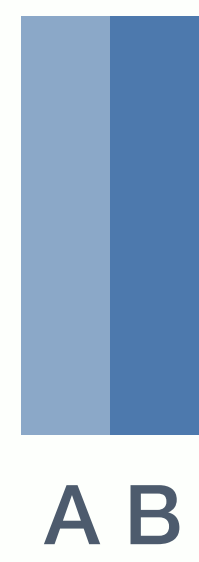


✓ The body uses the less frequent ferrous iron form more efficiently than ferric iron.



Using the model of the value of sentence parts, move ideas up and down the ladder of hierarchy until grammatical value reflects logical value.

coordinate ideas - a special case



Ideas that have equal importance are called coordinate. To show their logical sameness, we express them using a **parallel grammatical structure**.

Express logical sameness using grammatical sameness

A: Tuesday was sunny
B: Wednesday was cloudy

In most contexts, A and B would be equally important. But the sentence below does not use a **parallel grammatical structure**.



Tuesday was sunny although some cloud was seen on Wednesday.

'sunny' is an adjective but 'cloud' is a noun...

... and A is in the active voice but B is passive

Instead, change the sentence so A and B are in a parallel structure.



Tuesday was sunny but Wednesday was cloudy.

Now 'sunny' and 'cloudy' are both adjectives...

...and A and B are both in the active voice, and linked by the coordinating conjunction 'but' (model 5)

using parallel expression within paragraphs

Expressing coordinate ideas in a parallel structure can also be done within paragraphs. This paragraph expresses multiple coordinate ideas using 4 types of parallel structure.



The lock-and-key hypothesis was first described in 1897 by Emil Fischer. He used it to explain the specificity of interactions between enzymes and their substrates. Paul Ehrlich extended it in 1900 to account for the reactions of the immune system, and Frank Lillie employed it in 1914 to describe recognition between sperm and eggs.

1. Subject/verb

He used it...
Paul Ehrlich extended it...
Frank Lillie employed it...

2. Time

in 1897...
in 1900...
in 1914...

3. Coordinating conjunction
and...

4. Complement
to explain...
to account for...
to describe...

Note also the uses of the lock-and-key hypothesis are all in the active voice.

If this paragraph were not parallel, it would be **difficult to understand and lack impact**.



To explain the specificity of interactions between enzymes and their substrates, Emil Fischer first described the lock-and-key hypothesis in 1897. It was extended to account for the reactions of the immune system three years later by Paul Ehrlich. Furthermore, recognition between sperm and eggs was described 14 years later when Frank Lillie employed the hypothesis.

Parallel expression aids understanding of coordinate ideas

requirement 2 - economic expression

We conduct our daily activities as efficiently as possible.

Activity	Goal	Unit
shopping	minimum price	¥
working	minimum time	hours
moving	minimum effort	kJ
thinking	minimum mental effort	'mental \$'

We don't have a good unit to measure thinking, so let's establish the idea of mental price, M\$.

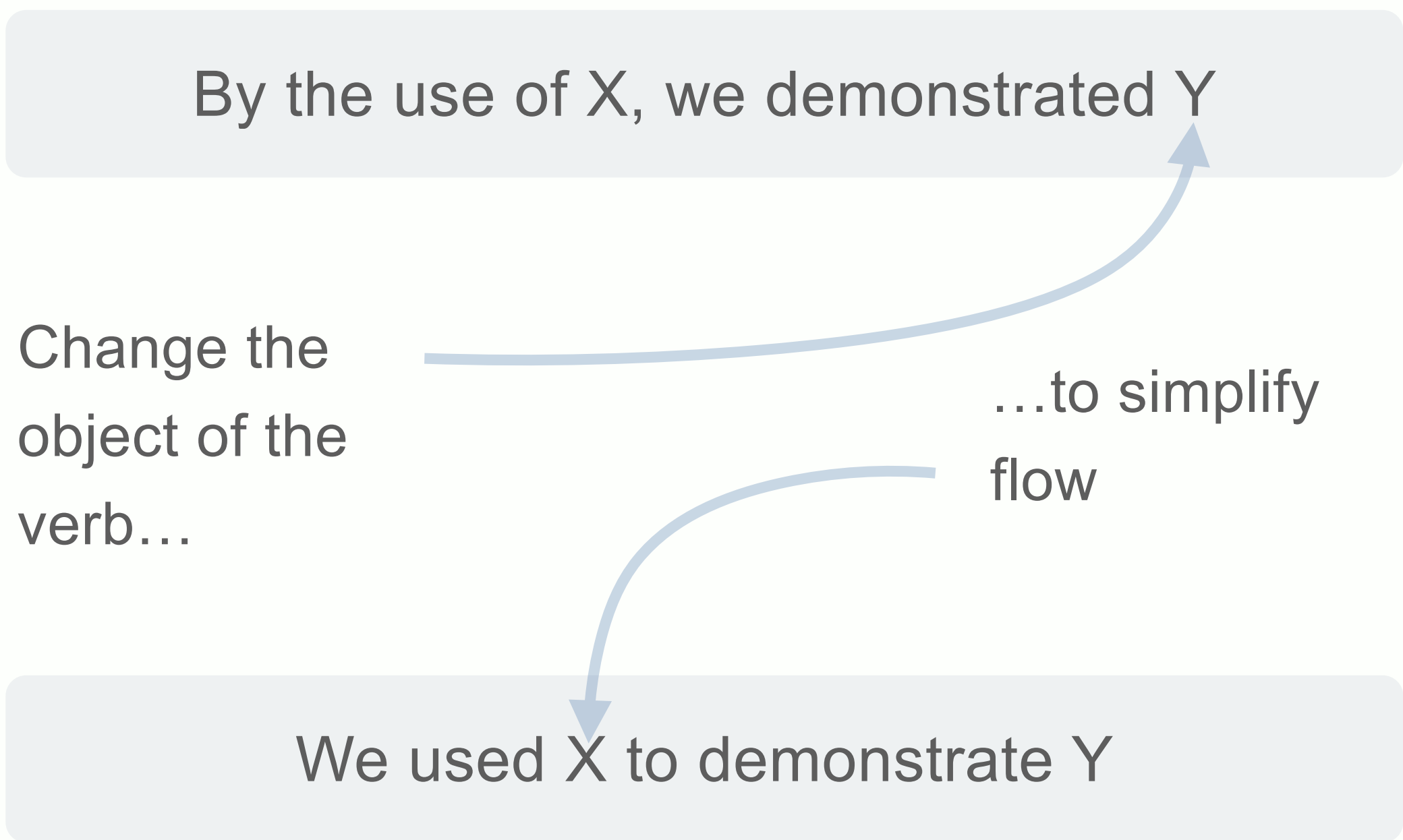
And because we define the sentence as the smallest whole, complete thought, let's consider the sentence as equal to one mental dollar - M\$1.

When you write, you should express your ideas as economically as possible - minimizing their mental price - so you readers spend the minimum M\$1 to understand them.

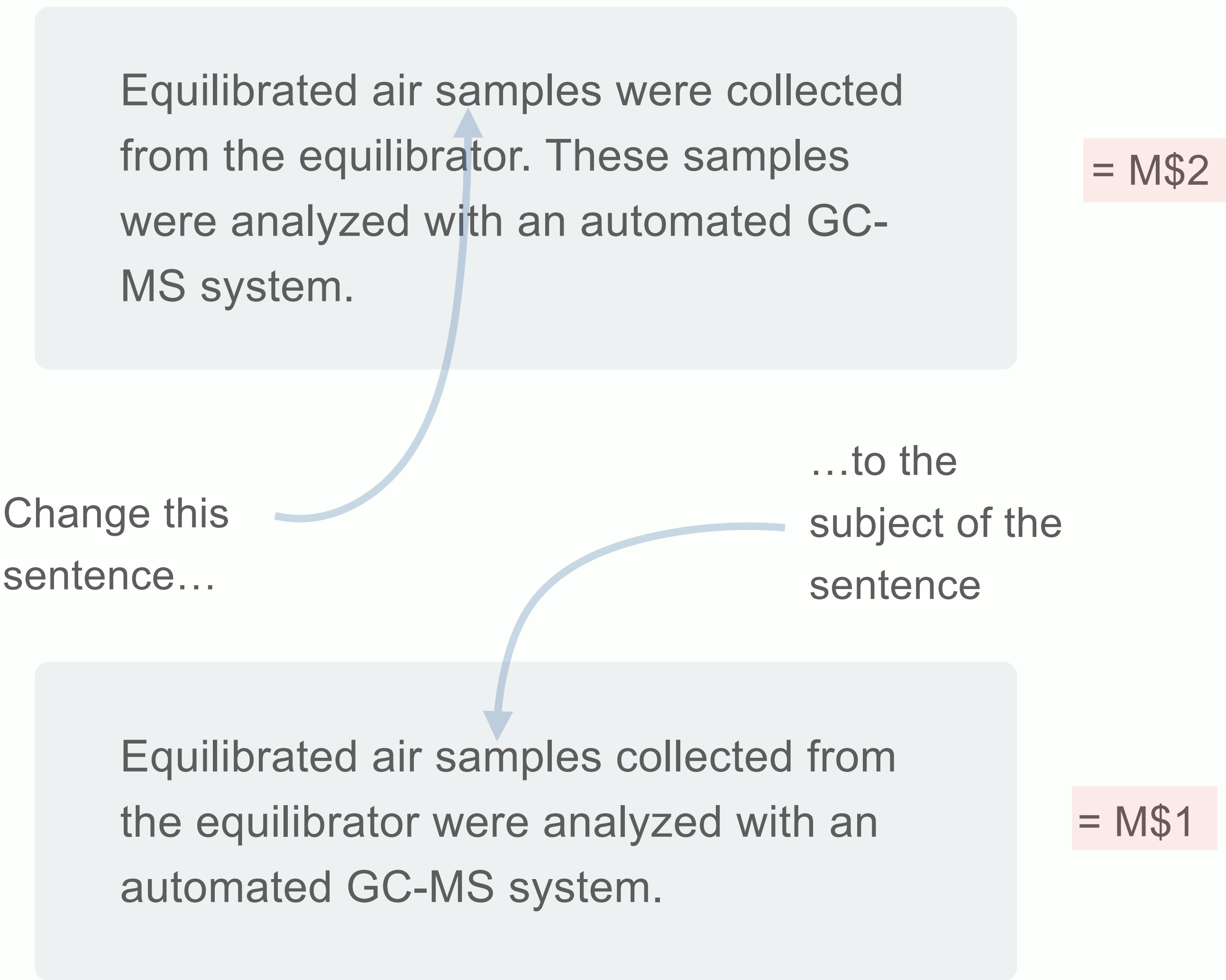
Expressing your ideas economically minimizes the amount of mental energy your reader needs to spend to obtain them. Each sentence costs your reader one mental dollar.

simple text changes to improve M\$

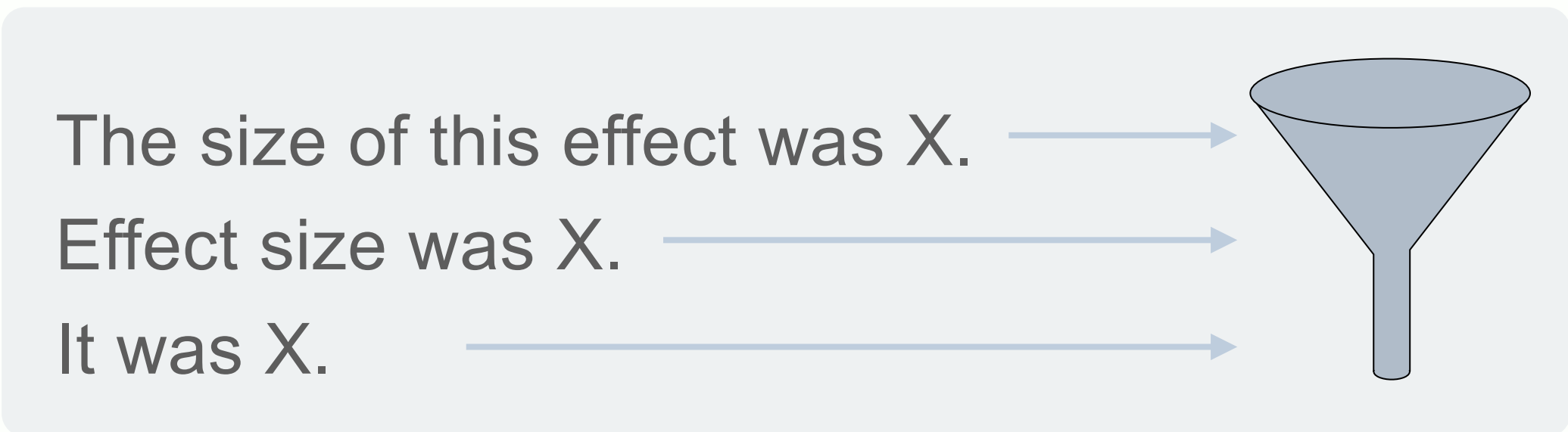
There are many ways to achieve economic expression. One way is to change the structure of a sentence.



Or changing sentences to clauses or phrases



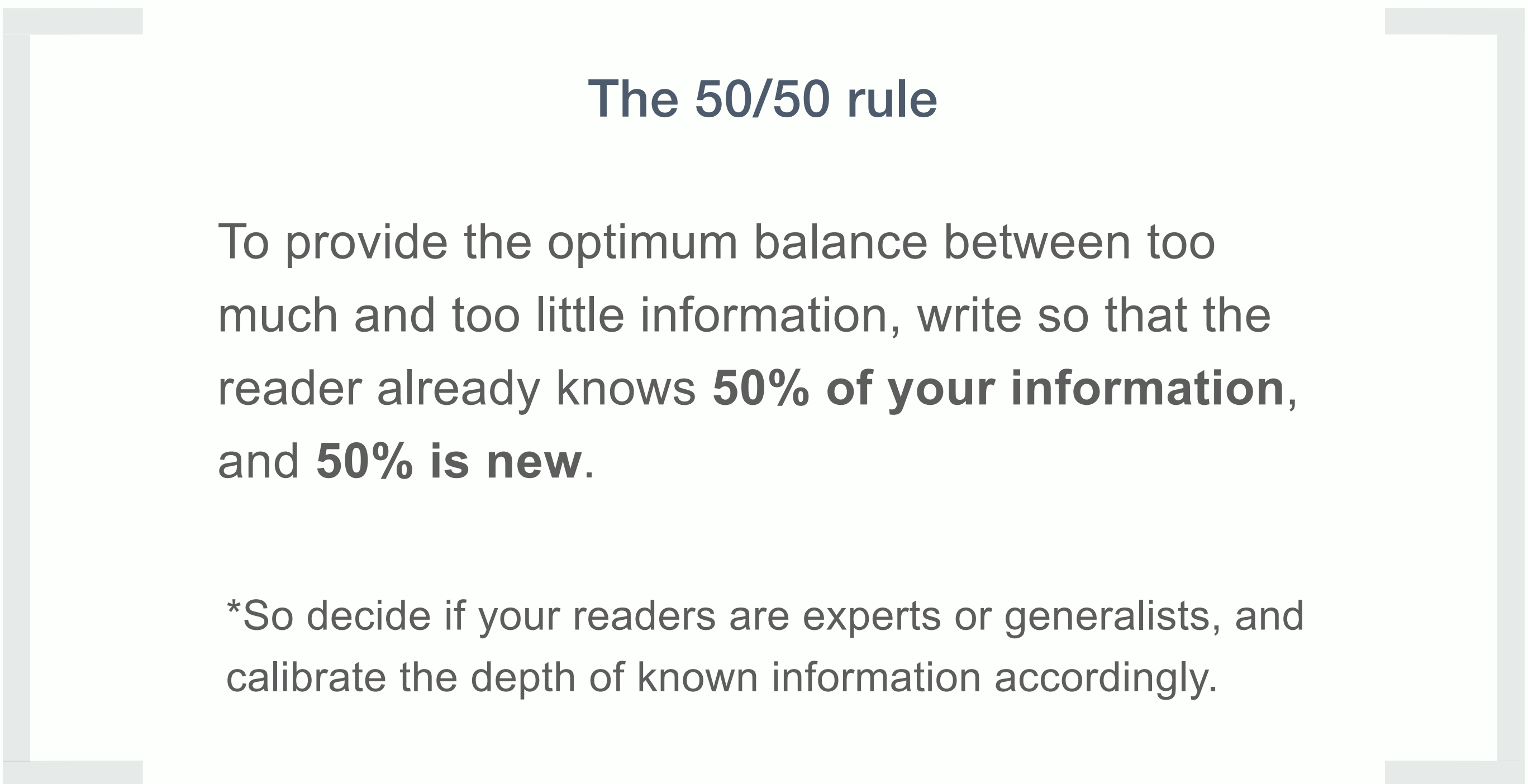
Or reducing longer terms to their shorter versions, or to pronouns.



Requirements 1 and 2 are related - expressing your ideas with the correct hierarchy of value often improves economy.

balancing M\$ with understandability

It is possible to economize too much, making your text difficult to understand. Avoid this using the 50/50 rule.



3 rules of readability

Readable and 'native-like' text is achievable. These three rules provide your text with flow, cohesion and impact.

rule 1 - place the main point at the end of the sentence

If your sentence makes an important point, put it at the end, just before the period. This is where the reader expects to find it.

If the main point is C:



Placing the main point at the end of the sentence is the most important rule of readability

The sentences below report the $\alpha 1$ -adrenoceptor subtype involved in contraction of the prostate. The authors found it was the $\alpha 1C$ subtype.

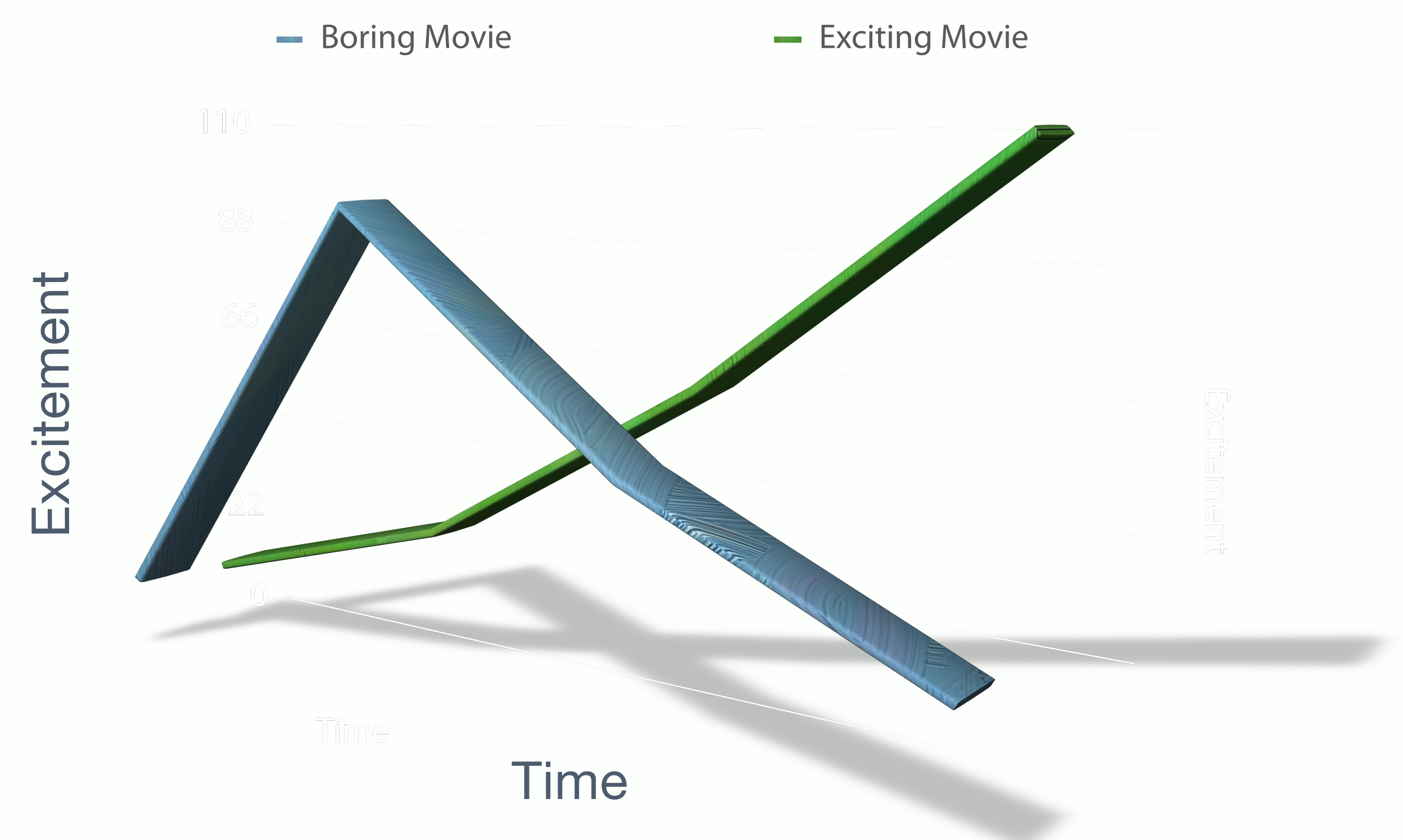
X We investigated contraction of prostatic muscle with a selective $\alpha 1$ -adrenoceptor antagonist. We found that the $\alpha 1C$ -adrenoceptor subtype is mainly involved in contraction.

Main point not at end...

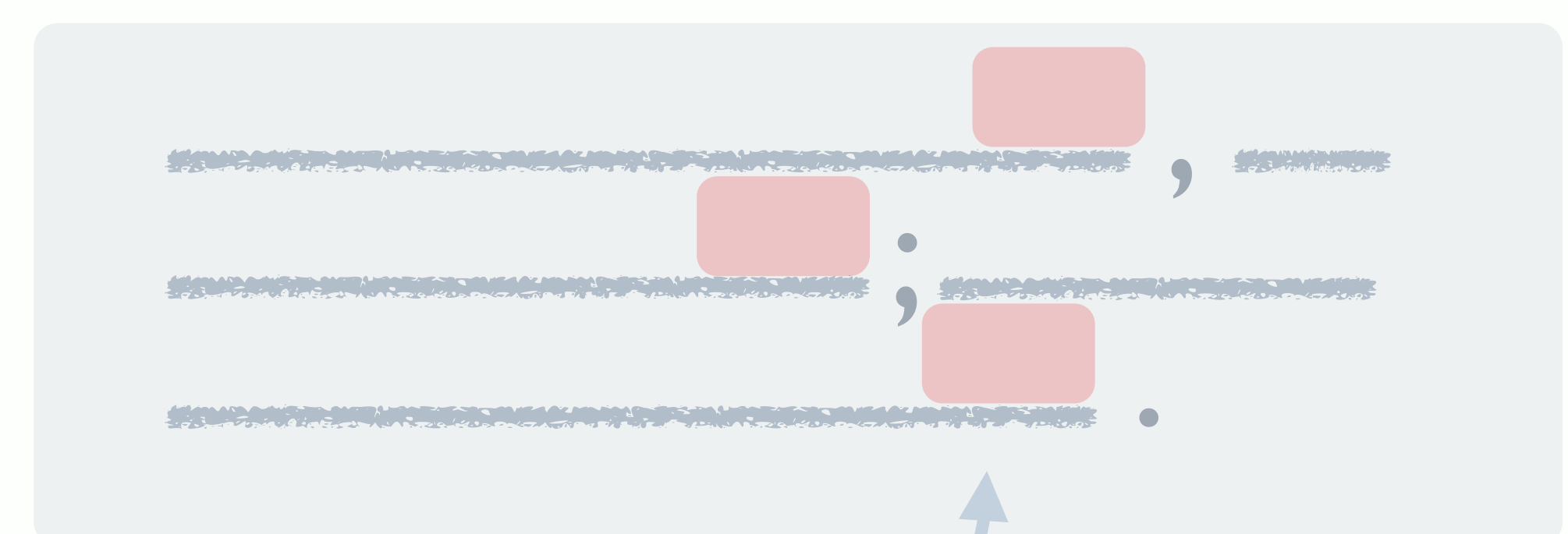
✓ We investigated contraction of prostatic muscle with a selective $\alpha 1$ -adrenoceptor antagonist. We found that contraction mainly involves the $\alpha 1C$ -adrenoceptor subtype.

...main point at end

Sentences that make a point are like a thriller movie - if the exciting point is not at the end, the sentence will be boring. James Bond 007 would never put his audience to sleep.



The rule also applies when your sentence contains commas, semicolons and other punctuation. Put important points before the punctuation.



Put important points before punctuation

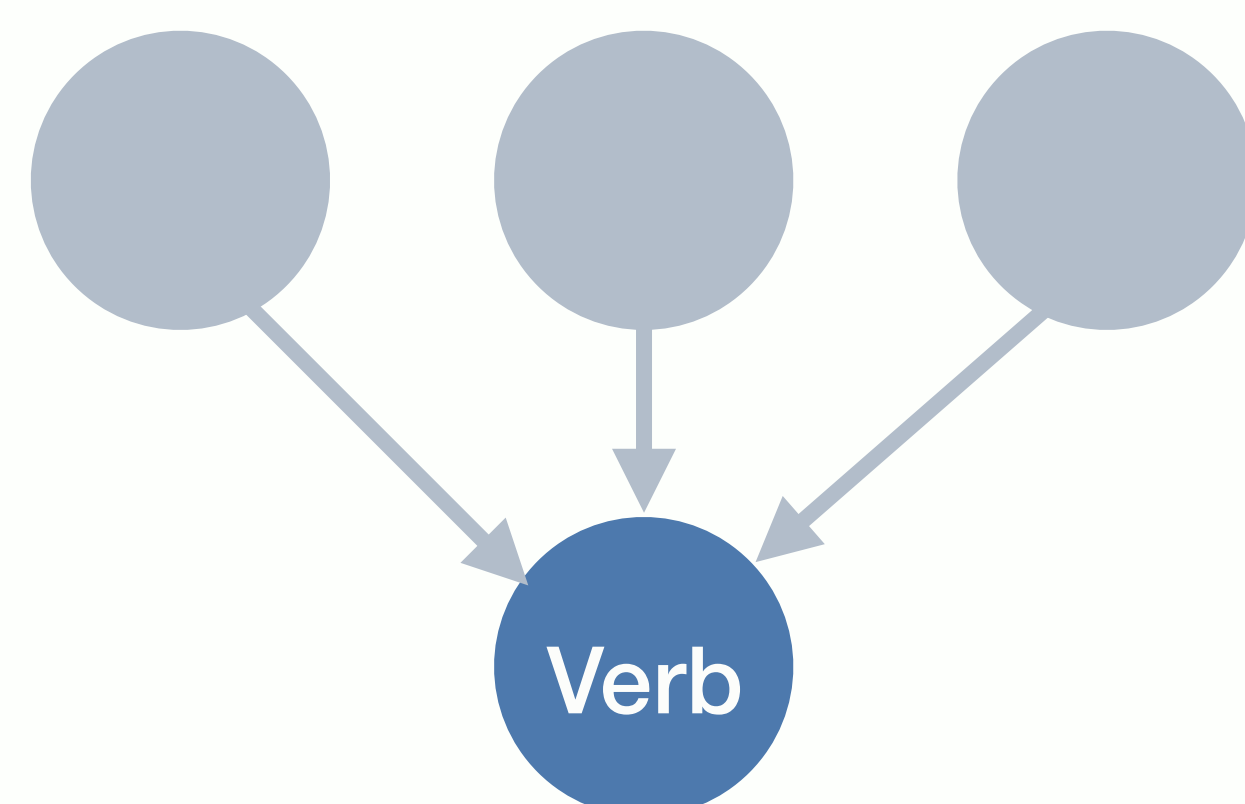
The reader expects your key information in the key parts of the sentence, just before the punctuation.

The period at the end of a sentence sends a message to the reader's mind: "This idea is over now; assimilate it, then prepare for the next idea in the next sentence." Placing the main point immediately before the period helps the mind implement this process.

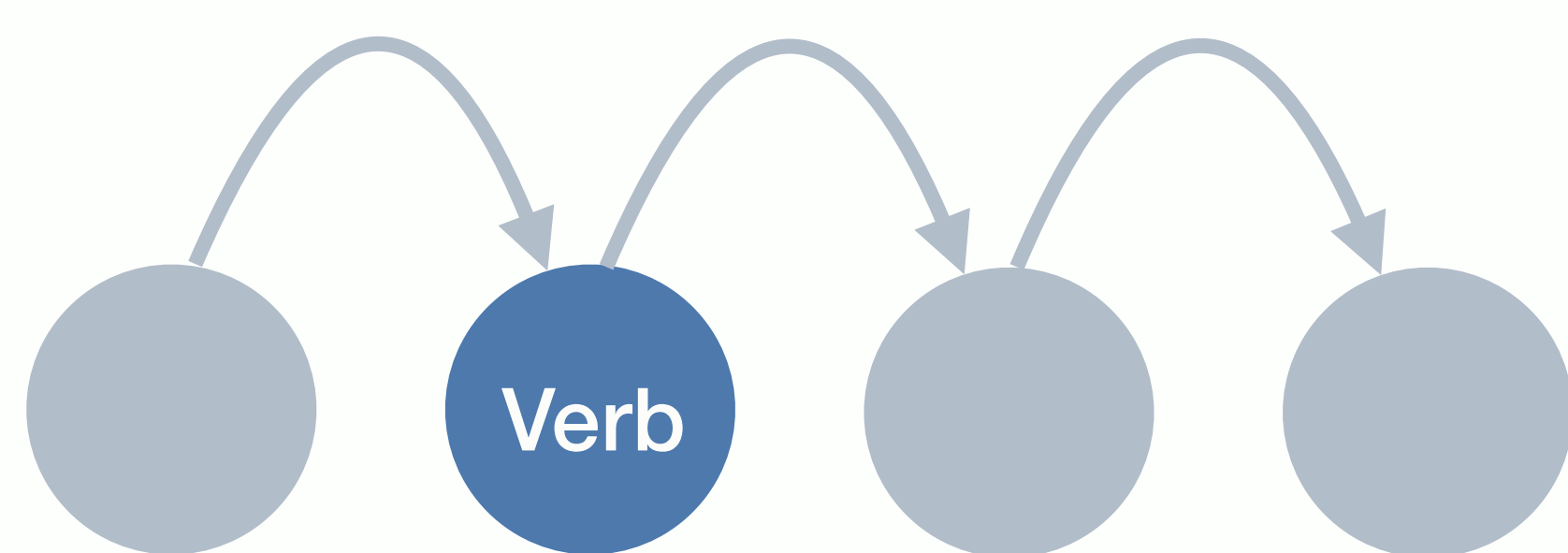
rule 2 - put known information before new information

Japanese and English sentences distribute words differently.

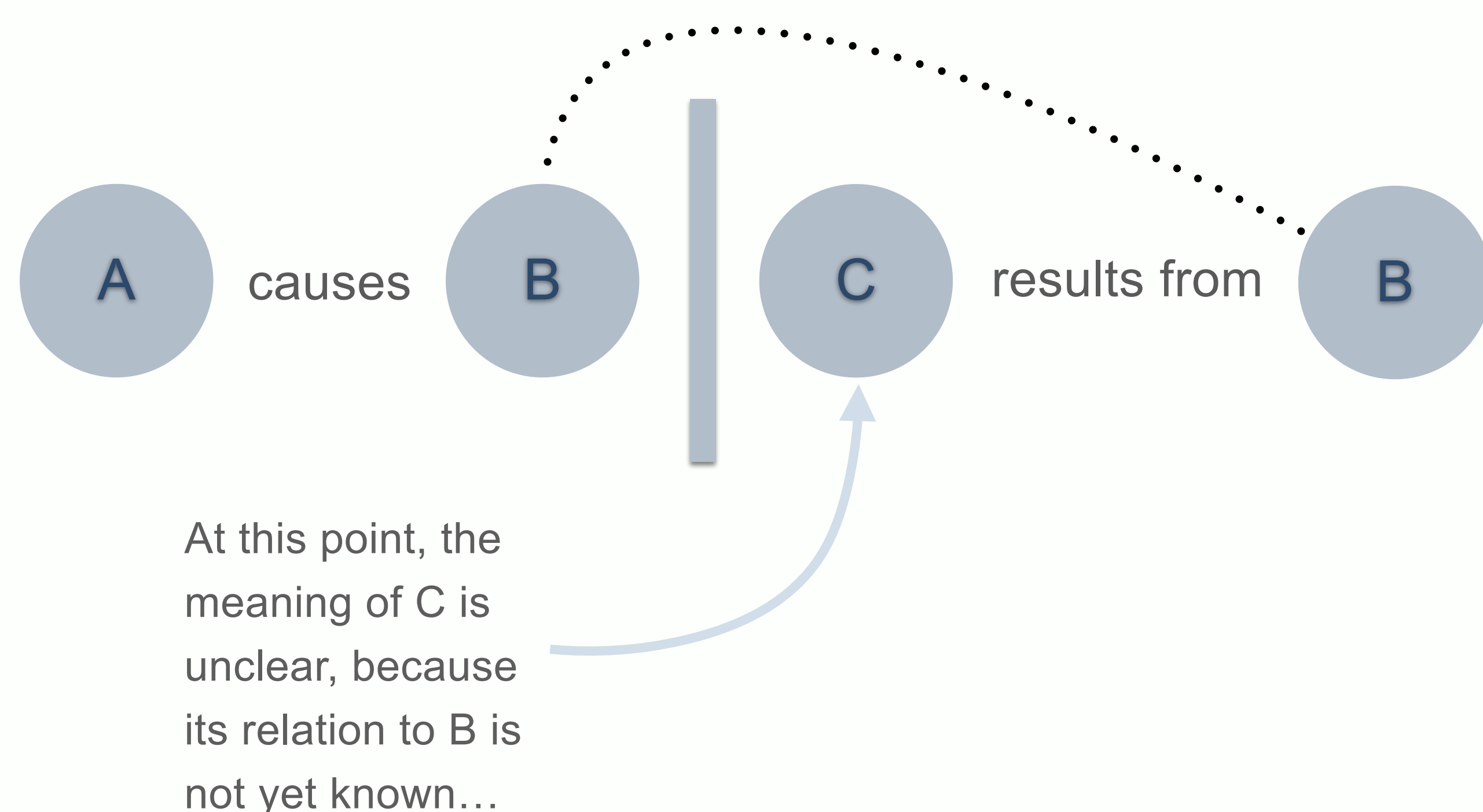
Japanese: sentence items balance on top of the final verb.



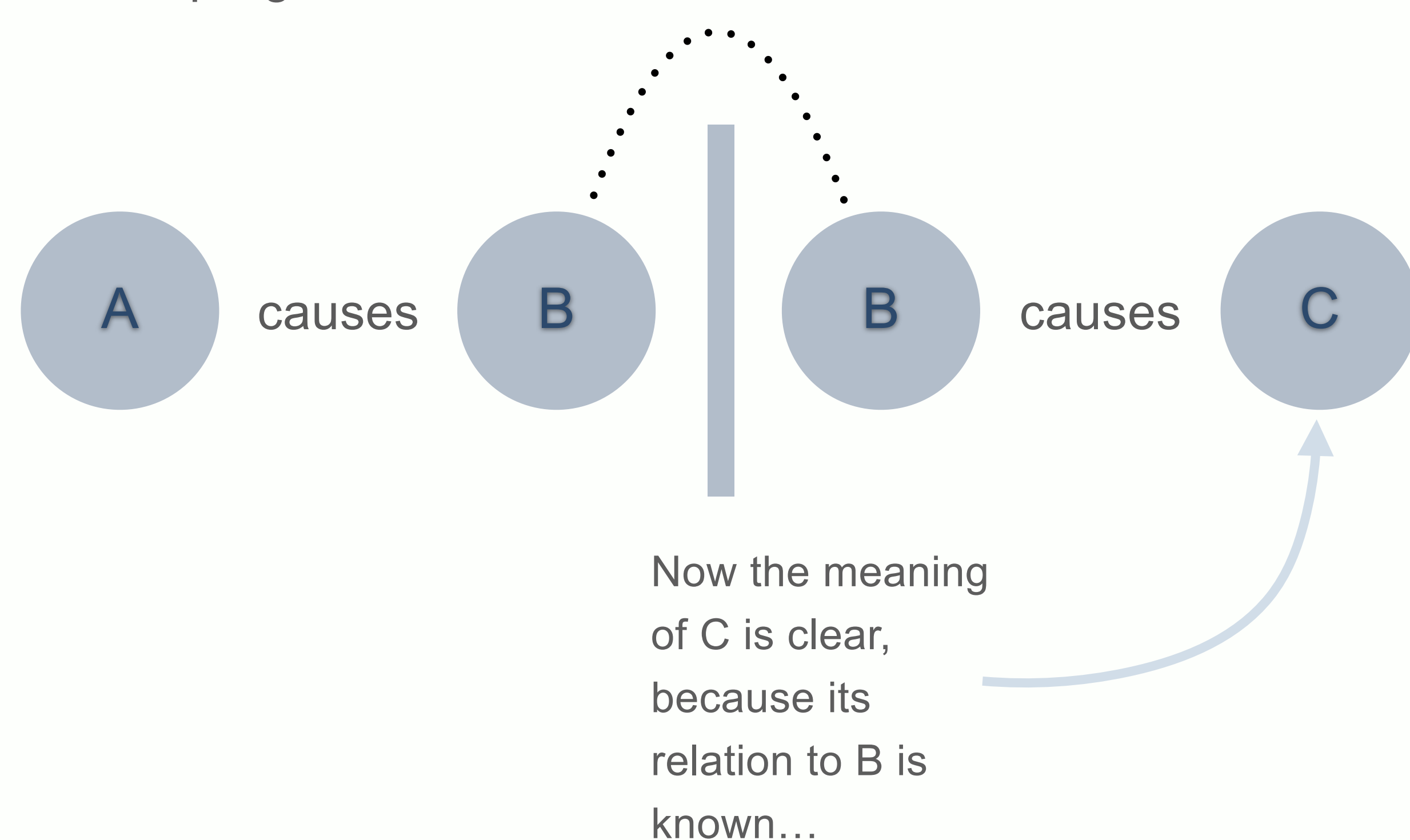
English: sentence items are distributed along the length of the sentence.



So in English, the order of the items is important. Look at the sentences 'A causes B. C results from B.' If the reader is familiar only with information A, the meaning of C will be unclear until reaching B at the end.

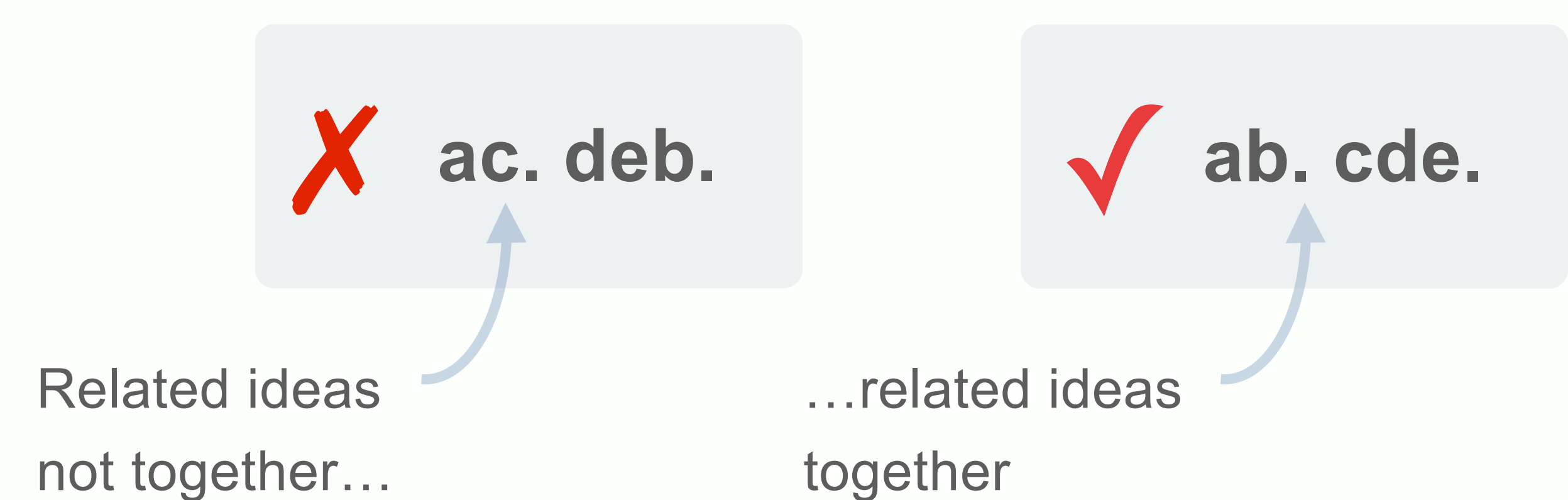


By moving the known B before C, the information flows in a naturally distributed progression.



rule 3 - keep related ideas together

Ideas which are logically related should be kept together - don't separate them by interposing unrelated ideas.



The paragraph below describes two items:

- study setting
- subject enrolment

In the first paragraph, the setting information is separated by the enrolment information:



The Nakatsu Study cohort was recruited from residents of Nakatsu City in Oita Prefecture, located in the south of Japan. Of 9,504 volunteers, we enrolled 8,257 who were free from cardiovascular disease and whose fasting plasma and urine samples were available. Total population of Nakatsu City is 84,000.

Now, all information is appropriately grouped:



The Nakatsu Study cohort was recruited from residents of Nakatsu City, a city of 84,000 inhabitants in Oita Prefecture, located in the south of Japan. Of 9,504 volunteers, we enrolled 8,257 who were free from cardiovascular disease and whose fasting plasma and urine samples were available.



1 definition +
2 requirements
3 rules

your beautiful, logical text

Afterword - the 1 2 3 method

Thousands of Japanese researchers have learnt the 1 2 3 method. Many have become accomplished writers in English - some surpassing levels commonly achieved by native English speakers, to whom these ideas are largely unknown. We encourage you to apply this method to your writing.

Acknowledgements

The 1 2 3 method was synthesized from ideas presented in a number of sources. In particular, we acknowledge 'Principles of Grammar' (L. Peikoff; 2020; Curtis Brown Studios) and 'Technical Writing and Professional Communication: For Nonnative Speakers of English' (LA Olsend and TN Huckin; 2nd Edition, 1991; McGraw-Hill College).