English academic writing for young students
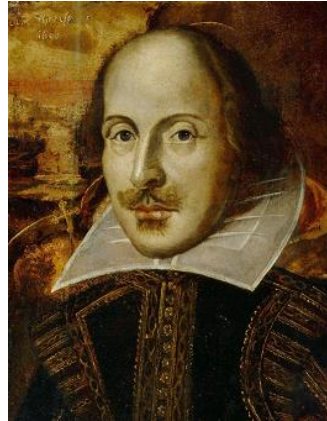
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What is academic writing for?

It is not a way becoming Shakespeare or Pushkin.

It is a way to convey information efficiently from authors to readers. They are expected to share some implicit rules. **Clarity, completeness**, **correctness**, **conciseness** , and **consistency** are important. Elegance comes later. You can safely forget witness and thrill.

What is academic writing for?

A scientific manuscript must not be emotional. We rarely use "think," "feel," or "believe" in the manuscript. The manuscript is a statement of your single (or a few) claim based on a set of theories and objective observations.

We do not discuss quality of contents in your manuscript in this seminar (I hope they are good). This seminar is about techniques explaining the contents in the manuscript correctly and clearly.

Writing with good practice

- ## Structure

- ## Conciseness

- ## Terminology

Your manuscript will hardly look professional or be readable unless you follow the rules. You need to follow the rules so that real contents in the manuscript are properly evaluated.

Contents

1. Draft
2. Sections composing a paper
3. Sub-sections and paragraphs composing the sections
4. Sentences composing the paragraphs
5. Conciseness
6. Terminology
7. Grammar
8. + α

Draft

You first determine how your whole manuscript is structured:
1) Sections and Sub-sections
2) Paragraphs
(Of course, you can modify the structure later.)

Which contents will stay in main text, will go to appendices or foot/end-notes, or will leave the manuscript?

Draft

1) Sections and sub-sections usually have some titles (e.g. Introduction, Experiment 1, methods, and results).

2) Each paragraph should be for one topic. Try to summarize the topic of the paragraph in one sentence (this can be a topic sentence).

3) What kind of figures and tables do you need in the manuscript?

Start discussing your manuscript with your supervisor from this stage. It is more difficult to change the structure of the manuscript later.

Working (Non-elegant) English	**Non-working Supposed-to-be-elegant English**
↓	↓
Revisions with your supervisor	**Revisions with your supervisor**
↓	↓
Clear English	**?**

Sessions of a manuscript

Title
Authors

Abstract: A very concise summary/overview of the manuscript.

Introduction: Motivation to the following main contents.

Main content: e.g. Experiments, Models, and Theories.

General Discussion (or **Conclusion** or **Summary**)

References: List of manuscripts referenced in the manuscript.

Title

The title of the manuscript should well represent its contents. Readers judge contents of manuscripts mostly based on their titles. Don't use any special character (←●@<=…). It makes your manuscript difficult to be found.

Abstract

Abstract is a very concise summary/overview of the manuscript (its motivation, purpose, methods, results, and conclusion). It is usually a single paragraph with a few hundreds words. The abstract should be written in the past tense because you are referring to the manuscript in the abstract.

Please consider that the title and the abstract are the face of your manuscript. People decide whether they read it or not mostly based on them.

Introduction

Introduction section motivates the study of the manuscript. The whole paper is based on this section. It makes reader prepare read the following part of the paper.

General opening

Background information

Raising a question

Setting a hypothesis

Stating a purpose

With reviewing prior studies that leads the story to the question, hypothesis, and purpose of the study. Introduction must be straightforward.

Ignore tangential or irrelevant prior studies especially for manuscript for submitting to journals.

Introduction

Introduction can be shorter or longer depending on a format of the manuscript. If it is a thesis, General opening can be much longer. If it is for submitting to a journal, it should be simple and concise.

General opening

Background information

Raising a question

Setting a hypothesis

Stating a purpose

Main Content: Experiment

In Cognitive Science, a main content of an article often refers an experiment (or experiments). It is almost a mere description of objective facts in the experiment. This section is composed of Method and Results sub-sections. These two subsections include, for example, contents in boxes below and can be divided into even smaller subsections.

Experiment
Method
Results

Objective
Rough design

Subjects
Apparatus
Stimuli
Procedure
Analysis (method)

Graph
Trends + Statistics
Analysis (results)
Discussion

Main Content: Other possible contents

Besides Experiment, there are a few more possible types of Main Contents in Cognitive Science. Please read prior studies in your research field to see how this section is composed.

Experiment
Theory (and Proof)
Model
Simulation

General Discussion

In the former part of the manuscript, the story became dispersed. This section converges the dispersed story and re-connects it with the original purpose of the study.

Summary

Discussion

Conclusion

Future work

Discuss:
- The current results by comparing them with prior studies
- The position of the current study in the field
- The prior studies based on the current results
- Mechanism of the brain suggested by the current results and the prior studies
- Remaining problems and new problems arose

Introduction vs. General Discussion

(1) Introduction
(2) Main contents
(3) Summary & General Discussion

- Your paper is surely rejected if either (1) or (2) has a problem.
- Your paper may be reviewed again after revision even if (3) has a problem.

- I often start writing from (2) while keep adding notes for (1) and (3).

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Paragraphs

Individual sections are decomposed into paragraphs. Each paragraph corresponds with one topic.

Order of paragraphs represents
- Importance of their topics
- A chronological order
- An order of deriving/suggesting some theory/idea

Types of a paragraph

Roughly speaking, there are two types of paragraphs: (1) a description of a single item and (2) a list of multiple items

(1) A description of a single item

An ability to detect symmetric objects is important because many natural and man-made objects in the real world are symmetric or approximately symmetric. More specifically, most of these symmetric objects are mirror (bilaterally) symmetric. There are also other types of symmetry: rotational and translational (Mach, 1906/1959). It has been argued that mirror symmetry is detected by humans more efficiently (shorter reaction times and smaller proportion of errors) than the other types of symmetry (Wagemans, 1997). In this paper, we will use "symmetry" to mean "mirror symmetry."

(2) A list of multiple items

Using different methods, other researchers reported evidence of sensitivity to pictorial depth cues at younger ages. For example, Bhatt et al. (Bertin & Bhatt, 2006; Bhatt & Bertin, 2001; Bhatt & Waters, 1998) found sensitivity to pictorial cues in infants as young as three months of age. In addition, 4-month-old infants looked longer at impossible events (Yonas & Granrud, 2007; Yonas, Granrud, Le, & Forsyth, 2007) and impossible objects (Shuwairi, 2009; Shuwairi, Albert, & Johnson, 2007), as specified by pictorial depth cues. Furthermore, a recent meta-analysis of 16 studies using preferential reaching to assess sensitivity to pictorial cues found reliable evidence of responsiveness to depth in 5-month-olds (Kavšek, Granrud, & Yonas, 2009).

Structure of a paragraph

The first sentence (or the first a few sentences) of a paragraph is the most important. It is called a "**topic sentence**". The topic sentence should give readers an idea of what the paragraph is about.

Using different methods, other researchers reported evidence of sensitivity to pictorial depth cues at younger ages. For example, Bhatt et al. (Bertin & Bhatt, 2006; Bhatt & Bertin, 2001; Bhatt & Waters, 1998) found sensitivity to pictorial cues in infants as young as three months of age. In addition, 4-month-old infants looked longer at impossible events (Yonas & Granrud, 2007; Yonas, Granrud, Le, & Forsyth, 2007) and impossible objects (Shuwairi, 2009; Shuwairi, Albert, & Johnson, 2007), as specified by pictorial depth cues. Furthermore, a recent meta-analysis of 16 studies using preferential reaching to assess sensitivity to pictorial cues found reliable evidence of responsiveness to depth in 5-month-olds (Kavšek, Granrud, & Yonas, 2009).

Structure of a paragraph

The second important part of the paragraph is its "**conclusion sentence**". It ties up everything mentioned in the paragraph. It also connects the current paragraph with the following paragraph. Note that every paragraph does not necessarily have its conclusion sentence.

… There fore, A.

B based on A. …
…
… Therefore, B.

Structure of a paragraph

The second important part of the paragraph is its "**conclusion sentence**". It ties up everything mentioned in the paragraph. It also connects the current paragraph with the following paragraph. Note that every paragraph does not necessarily have its conclusion sentence.

⋮

approximation is good when the object is small compared to the viewing distance. More precisely, an orthographic approximation to a perspective projection is good when the range in depth of the object or figure is small relative to the viewing distance. In practice, it is usually assumed that "small" means less than 10%. Despite the fact that retinal images of symmetric figures are almost never themselves symmetric, skewed symmetry received much less attention in the prior psychophysical research than the case of symmetric images. Before we discuss prior psychophysical research on skewed symmetry, we briefly review the relevant geometry.

Structure of a paragraph

The first sentence (or the first a few sentences) of a paragraph is the most important. It is called a "**topic sentence**". The topic sentence should give readers an idea of what the paragraph is about.

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Connecting sentences

Sentences in a paragraph can be connected by transition words/phrases. The transitions enhance logical organization and understandability of a story in the paragraph. Readers can flow more smoothly from one point to the next.

The transitions can be categorized in the following 19 types: (1) Consequence, (2) Reason, (3) Contrast/Comparison, (4) Emphasis, (5) Addition, (6) Assumption, (7) Motivation, (8) Similarity, (9) Illustration, (10) Restatement, (11) Diversion, (12) Confirmation, (13) Routing, (14) Generalization, (15) Listing, (16) Exception, (17) Sequence, and (18) Summary.

Connecting sentences

Examples of the transition words/phrases

(1)	Consequence	: consequently, hence, therefore, thereupon …
(2)	Reason	: because, since, indeed …
(3)	Contrast Comparison	: but, however, though, while, whereas, yet …
(4)	Emphasis	: particularly, specifically, especially …
(5)	Addition	: also, moreover, in addition, as well …
(6)	Assumption	: if, unless, consider, assume, otherwise …
(7)	Motivation	: to this end, for this purpose, in order to …
(8)	Similarity	: similarly, also …
(9)	Illustration	: for example, e.g., to name a few …

Connecting sentences

Examples of the transition words/phrases

(10) Restatement   : in other words, thus, in summary …
(11) Diversion   : by the way, on the other hand, besides …
(12) Confirmation   : recall that …
(13) Routing   : hereafter, in the following …
(14) Generalization : as usual, for the most part, generally, usually …
(15) Listing   : first ~ next ~ finally …
(16) Exception   : aside from, barring, beside, except …
(17) Sequence   : at first, first of all, to begin with …
(18) Summary   : after all, in brief, in conclusion …

- Minimize number of transition words/phrases of Contrast (e.g. but, however) and Diversion (e.g. on the other hand). These types of transitions require readers to change their viewpoints.

Sentences

- The basic structures of an English sentence: SV, SVC, SVO, SVOO, SVOC
- Phrases with prepositions (for, to, on, in, with, …) come almost always after the basic structure.
- A because B. A while B. A when B. A if B. A unless B. A though B.

- Say the conclusion first.
It is easier to understand a reason
after knowing its outcome.

Sentences

I do not know a lot about Japanese history enough to discuss politics with people from other countries. So, I bought a book about Japanese history.

(1) However, the book takes too much space for Japanese prehistoric age.

(2) However, Japanese prehistoric age is the main content of the book.

(3) However, too much space is taken for Japanese prehistoric age in the book.

- New words come later.

(Sugihara, 1994)

Sentences

(1) [This problem] is important because one of major factors making students sleepy in my class is [it].

(2) [This problem] is important because [it] is one of major factors making students sleepy in my class.

- A viewpoint of readers stays the same.
- Don't make a subject of a sentence toooooooo long

It also depends on context how good a sentence is. Hence, these rules are not always satisfied.
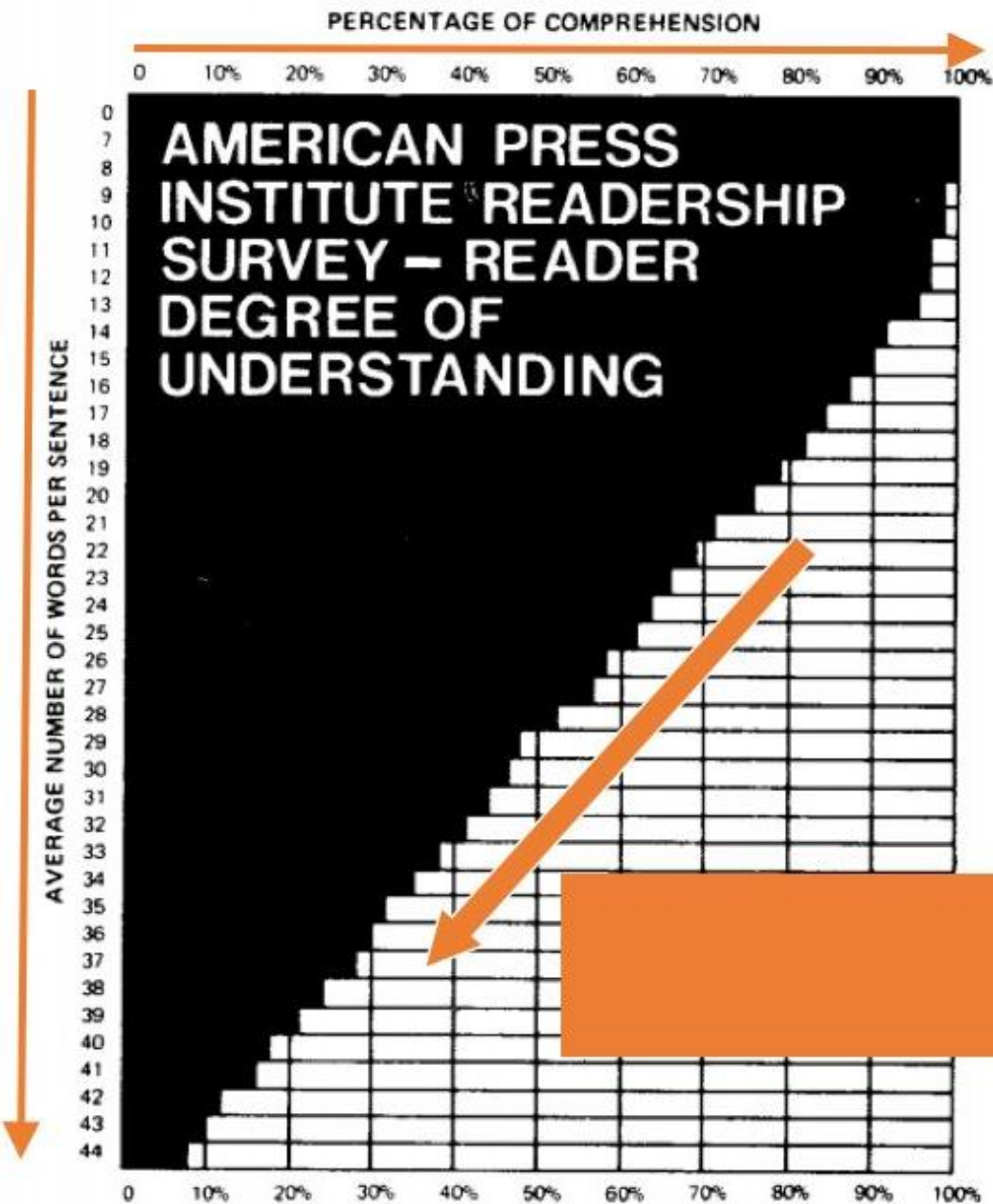
Sentences

- Avoid writing long sentences.

Sentences

- Avoid writing long sentences. I do not say you must not write any long sentence because there are some unavoidable cases but it has to be minimized but still writing a long sentence (by the way, this sentence is composed of more than 250 words) is sometimes looks necessary so that it includes all necessary information at once, for example, you are able to describe, say, multiple temporal events which are mutually depending on one another and are going on in parallel in the single sentence but it makes the sentence difficult to be read or hard to be understood by readers while you may think it is an only (or the best) way to write down those parallel events at once though even you may not want to read the sentence again after writing it up and, honestly speaking, I am actually very reluctant to read this sentence again and it surely means any reader, especially a non-native English speaker, does never want to read such a long sentence and then, the readers would have troubles to read the latter part of the manuscript because the long sentence surely contains substantial amount of information which can be critical to understand the whole manuscript but the readers who do not read it miss all the information written in the long sentence hence, I am afraid that they give up reading the manuscript any further but you don't need to worry because I believe there is always a way to write the same information but in a few separated sentences with better readability and then, everyone would be happy.

Sentences

PERCENTAGE OF COMPREHENSION

AMERICAN PRESS INSTITUTE READERSHIP SURVEY – READER DEGREE OF UNDERSTANDING

M.J. Bolsky, "Better Scientific and Technology Writing" Prentice Hall, 1988, p.43より

*"The shorter the sentence, the less the chances of serious ambiguity. So, if your sentence is more than **40** words long, you should think seriously whether you cannot break it up... as to the average length of a sentence, **20** words is a good average to aim at and even **15** is probably not too short."*
(from Leggett, 1966, p. 793)

Sentences

- (A sentence in parenthesis means it doesn't have to be read.) Do not overuse a sentence in parenthesis.

- Avoid using single words with different meanings
  (e.g. accommodation in vision science, similar in geometry)

- Don't use spoken expressions or slang words. Formal expressions minimize number of possible (wrong) interpretations of sentences.

- Remember that readers never read between lines.

- Don't be bugged too much by techniques/practices for elegance.

- Be sure that pronouns (e.g. this, that, they, them, …) are clear.

Sentences

A: I and my Japanese colleagues cooked Japanese dishes for a party.
B: Oh, I like *them*, *they* taste good!

"Japanese people taste the best – whites are too salty!"

Sentences

- In general, the active voice is preferred rather than the passive voice. The passive voice is preferred when a sentence is expository and its focus is on a recipient of an action.

(a1) The subjects adjusted the response stimulus …
(a2) The response stimulus was adjusted by the subjects …

(b1) The EEG system was set in a shielded room.
(b2) We set the EEG system in a shielded room.

Sentences

- The first person words (I, we, my etc)

(b1) The EEG system was set in a shielded room.
(b2) We set the EEG system in a shielded room.

(c1) We tested the effect of color on performance in reading.
(c2) The effect of color on performance in reading was tested.
(c3) It was tested how color affect performance in reading.

(d1) We see a 3D scene out there veridically.
(d2) I see a 3D scene out there veridically.

Sentences

- Use a noun originate from a verb after using the verb.

    Humans **use** tools. The **usage** of the tools made us …

(e1) A task of the subjects was choice of …
    They chose based on….

(e2) A task of the subjects was choosing …
    The choice was based on…

Sentences

From Freeling et al. (2019)

"*highly cited articles were short; used first-person narration; placed findings in context by providing a setting (e.g., "in the world's oceans" or "over the past 20 years"); linked ideas by using conjunctions (e.g., "therefore" or "conversely"), punctuation marks (e.g., semicolons and dashes), and consistent terminology; and avoided excessive acronyms and awkward noun chunks*"

"*there is no single formula for writing better.*"

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There is some common terminology among academic fields. A few categories of the academic terminologies are introduced in the following slides.

Terminologies

There are some common jargons among academic fields.

Note that many of those jargons are commonly used in our everyday life with common meanings. However, the words should be preserved for their specific scientific meanings in your writing.

Terminologies: what results do
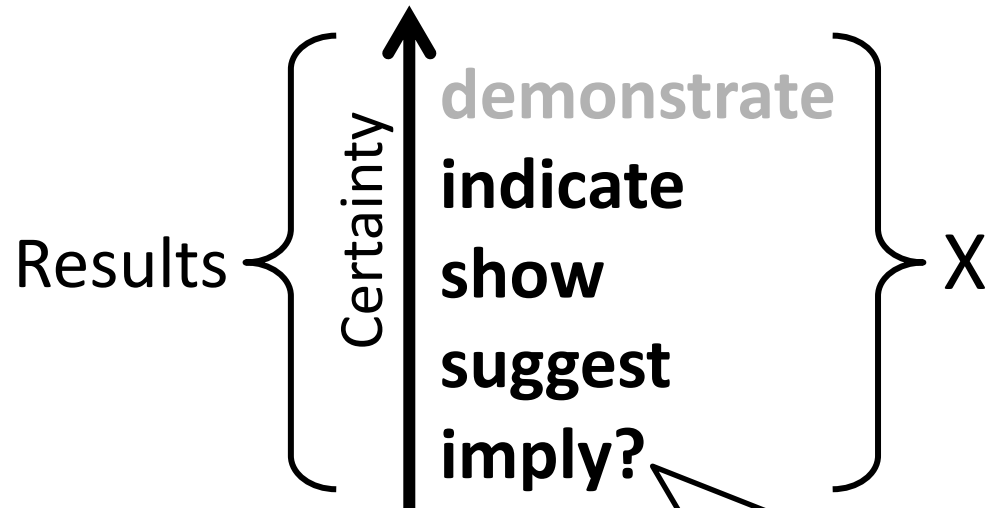
Terminologies: what you do

We $\left\{\begin{array}{l}\textbf{examined}\\ \textbf{investigated}\\ \textbf{tested}\\ \textbf{studied}\\ \textbf{observed}\\ \textbf{conclude}\\ \textbf{propose}\\ \textbf{report}\\ \textbf{describe}\end{array}\right\}$ X

Of course, use "I" when you write a single author paper.

Terminologies: what prior study did

Sawada (2010) ⟨ examined
investigated
tested
studied
observed
concluded
proposed
reported
described
demonstrated
indicated
showed
suggested ⟩ X

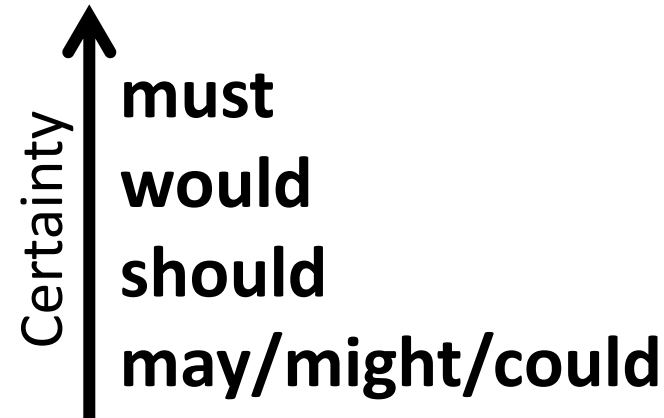"Sawada (2010)" may refer myself but it often refers my study done in 2010. So, it can take verbs for both results and authors.

Terminologies: modal verbs

You use some modal verbs to represent how certain your are:
may, might, could, should, would, must

Certainty ↑
must
would
should
may/might/could

Using these terminologies, you can write a sentence with very weak certainty. However, you don't need to write such uncertain information in the manuscript. Weakening your claim doesn't make you look smarter or politer.

Example: It is **possible** that it **can** rain today.
(This sentence means "I don't know.")

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Articles: a (and an)

- The indefinite articles **"a"** and **"an"**: They refer to something single and countable not specifically known to readers. They are used before nouns that introduce something or someone you have not mentioned before.
    I saw **an** elephant this morning.
    I ate **a** banana for lunch.
    I met **a** university student **an** hour ago.

Examples are from http://www.learnenglish.de/grammar/articlestext.html

Articles: the

- The definite articles **"the"**: It refers something that is already mentioned or specifically know to readers. The reference is not necessarily single or countable.

  She's got two children; a girl and a boy.
  The girl is eight and **the** boy is fourteen.

- A whole class of objects:

  The computer made analyzing data easier.
  The mantis shrimp has 16 types of photoreceptors.
  Exception:
  Man will eventually destroy himself.
  Humankind will eventually destroy itself.

Examples are from http://www.learnenglish.de/grammar/articlestext.html
http://www.grammaring.com/the-definite-article-the

Articles: the

- With specifications:

  It was **the** *first* time for me to drive a car.

  That is one of **the** *most* beautiful things on the earth.

  That homework is **the** *last* thing I want to do.

  The subjects were asked to tap **the** *brightest* circle.

  This root is **the** *right* way to enter the village.

  You are working on **the** totally *wrong* thing.

  This possibility was tested in **the** *next* experiment.

  He is **the** *only* person who can save the earth.

  We observed **the** *same* effect.

Articles: the (some other rules)

- Unique objects: **the** sun, **the** moon, **the** earth
- Historical references: **the** cognitive revolution
- Musical instruments: **the** guitar
- Geographical points: **the** equator, **the** north pole
- Names of places: **the** national research university
- Rivers, oceans and seas: **the** Arctic ocean, **the** Moscow river

But not bays, lakes, or ponds:

(1) We went swimming in **a** lake. Water in **the** lake was very cold.

(2) We went swimming in ~~the~~ lake Baikal. Do I need to tell whether the water there was cold?

Articles: the (some other rules)

- Unique objects: **the** sun, **the** moon, **the** earth
- Historical references: **the** cognitive revolution
- Musical instruments: **the** guitar
- Geographical points: **the** equator, **the** north pole
- Names of places: **the** national research university
- Rivers, oceans and seas: **the** Arctic ocean, **the** Moscow river

- With adjectives: **The** rich get rich, and **the** poor stay poor.
- Names of families: **the** Bernoullis in mathematics
- Titles and positions: **the** president, **the** department head
- Titles of books, newspapers etc: the Crime and Punishment

Examples are from http://www.learnenglish.de/grammar/articlestext.html
http://www.grammaring.com/the-definite-article-the

No article

- Things (plural or uncountable) in general:
    The brain processes **visual information**.
    People can see **3D shapes** of **objects**.
- Proper names: Euler, Fechner, Purdue university
- Days, months, seasons, holidays in general:
    Monday, March, summer, Christmas
- Certain parts of the day: night, noon, sunset/sunrise, dusk (except for "in the morning/afternoon/evening")
- Certain geographical names: Europe, Russia, Moscow, Wall street, lake Baikal, Mont Blanc (many exceptions exist)

No article (some other rules)

- Sports, games, and meals: football, tennis, lunch, solitaire
- Places used for their particular purposes:
  church, school, bed, class, college, hospital,
  town, university
- Prepositional phrases:
  in charge, in danger, at war, by heart,
  beyond control, on time, by car

Examples are from http://www.learnenglish.de/grammar/articlestext.html
http://www.grammaring.com/the-definite-article-the

+ α: a few more important things…

Proof reading

Each author of the manuscript should fully review/proof-read it to find errors or typos before being submitted. Otherwise…

Although association preferences documented in our study theoretically could be a consequence of either mating or shoaling preferences in the different female groups investigated (should we cite the crappy Gabor paper here?), shoaling preferences are unlikely drivers of the documented patterns both because of evidence from previous research and inconsistencies with *a priori* predictions. Our methods closely followed those of published mate choice experiments in this system (Tobler et al. 2009a,b; Plath et al. 2013),

From Culumber et al. (2014)
Note: this crappy comment was already removed.

Plagiarism

Plagiarism is, in short, stealing someone's idea (e.g. text). It is regarded to be plagiarism to use what someone wrote in your manuscripts (or presentations) without any reference to it. (Even if it is from your previous work.) **Never do it**.

"*A good essay is one where a student has read around the subject, taken into consideration other people's work on the topic, cited this correctly, and comes up with **their own** take/ideas on it.*"
From http://about.brighton.ac.uk/pabsstudyskills/essential-skills/plagiarism.html

If you want to refer someone's idea, you can write its short summary with a reference to it.

If you want to use the exact words in someone's text, separate that part with a pair of quotation marks and refer to the source with its page number. Every journal ask authors to follow some publication manual and the manual explains how to quote.

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