Academic Writing in English

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This book began to emerge in 1985, based on the wisdom of my original guru in Finland, Jean Margaret Perttunen (1916—). Peggy's book, *The Words Between*, during decades in which she offered me specific advice, taught me about Finnish scientists' problems in writing in English.

A more recent guru is Björn Gustavii, MD, PhD, of Lund, Sweden. His first book, *How to Write and Illustrate a Scientific Paper*, plus our frequent emails and his manuscripts for a forthcoming guide to compilation theses have been so valuable that I cite him here very often.

My colleague Stephen Stalter keeps a sharp eye on my course books and understands my cranky computer. Mari Storpellinen aided me with index-building and visuals. I welcome all suggestions from University Language Services teachers and author-editors and from my students and clients.

The European Association of Science Editors (EASE) since 1997 has let me sit at the feet of major international journal editors in order to import their advice to Finland. EASE publishes in *European Science Editing* short pieces based on our classroom "action research." Course participants in the University of Helsinki medical faculty thus benefit from EASE and repay with their views and innovations.

To all, I offer many years' worth of gratitude.

Carol Norris, 2012

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Advice for Modern Academic Writing

In some fields, young scholars may imitate the often out-dated style of their professors or of journal articles published many years ago. Nowadays, style is evolving, because of widening democracy and internationalization, and also increased printing costs.

The KISS Rule is "Keep it Short and Simple," and less politely**: "Keep it Simple, Stupid!"**

At a conference of the Association of European Science Editors (EASE), the editor of the *British Medical Journal* demanded:

clarity
readability
non-ambiguity

He also wanted articles to be as short as possible. Rather than "Count every word," we should "**make every word count.**" Remove every useless or extra word.

Teacher-editor-author Ed Hull wants "reader-friendly" scientific writing. To achieve this, he says, authors must realize that they are no longer in school; teachers demand performances greatly different from texts meant to inform busy readers wanting "nuggets" of precious information.

Similarly, in the EASE Bulletin *European Science Editing* (1998, 24, 1; 7-9), Frances Luttikhuizen had criticized "exaggerated use of the passive voice and Latin-based words … [that] belongs to the formal style of the 17th century. It weakens scientific writing. The active voice is much more forceful than the passive . . . . For linguistic as well as cultural reasons, scientists who have English as a second language . . . tend to feel more comfortable writing in a more formal style." Her ageless advice continues, "**Readers of scientific papers do not read them to assess them, they read them to learn from them** . . . . **What is needed is more simplicity, not more sophistication**!" **Aim** "**to inform, not to impress**." (Emphasis added.)

General Advice for Non-Native Writers

Never translate. Of course you can use your own language to take notes and write outlines. But word-for-word translation into English means that anyone's mother tongue causes interference. This will damage the grammar of your English and your vocabulary, punctuation, and everything else. Some Finns can rapidly write letters and stories in correct, charming English, but when they write a text first in Finnish and then translate it, the result will be awkward, unclear, and full of errors.

Accept total responsibility for being clear. If an intelligent reader has to re-read any sentence to understand it, the Anglo-American attitude is not to blame the reader, but to blame the writer. This may contrast with the direction of blame in your own culture, but think: Who has the time to re-read sentences? Bad idea!

The worst sin is ambiguity. Being ambiguous means accidentally expressing more than one meaning at one time, as in: "Women like chocolate more than men." Does this mean that, given the choice between a nice Fazer chocolate bar and a man, a woman will prefer the chocolate? Or do you mean that "Women like chocolate more than men do"? Let's hope, for the survival of humanity, that it's the latter!

Careful editing will **shorten your texts, making them more publishable.** One writer wisely said, "If I had had more time, I would have written you a shorter letter."

Trust your ear. English grammar rules are many, with multiple exceptions. At your language level, in this country, depend instead on what you have **heard in English, idioms especially. Your ear will tell you** when an **odd-looking phrase sounds right**. My long experience shows that Finns' TV- and travel-trained ears are trustworthy. **Read all your written texts aloud to yourself**.

English is not logical. The most **logical choice of words is often not what a native speaker would say**. (Which is logical*:* "hang up," "ring off," or "close the phone*?*" How about "For the 20 last years" versus "for the last 20 years"?) In English, the most nearly logical system is punctuation, but even punctuation differs considerably from Finnish punctuation.

Finno-ugric versus Anglo-American Style

Finns, from a homogeneous, well-educated society, may tend to view their readers as informed colleagues who will work hard to understand a text. Good Anglo-American writers may seem to be "packaging" or even "marketing" their texts; they are actually trying to write so clearly that a busy, tired, easily bored reader can absorb their full meaning in only one rapid reading.

The Anglo-American writer leads the reader by the hand, but the Finnish writer often expects readers to find their own way. In Finland, be Finnish. But **Finns wishing to publish in English in journals with Anglo-American editors and reviewers must use a reader-helpful style**.

For instance, **make the strategy of your text clear, not implicit.** Present important points first, rather than gradually "sneaking up on them." Let your readers know immediately what is going on.

> Note: This book benefits from a collection of essays gathered by Professor George M. Hall entitled *How to Write a Paper*, 2nd edition, 1998 (British Medical Journal publishing group). Hall and his other expert contributors will be cited as appearing in "Hall 1998."

Basic Methodology I: Process Writing

Write the first draft

- **Never translate** whole sentences from your mother tongue.
- **Avoid trying yet to organize your items.** Rather, get your ideas out in front of you first.
- **Pour out** your thoughts in **English,** in the language of **speech**.
- **Write in many short, simple sentences.**
- **Refer immediately** to the **main items** involved; use signposts.
- **Write** "**long**": Produce a 1,000-word text that will end as 600 words.
- **Allow** yourself to use the **passive voice** (see section on passives) whenever comfortable.
- Let yourself **use** the **spoken forms** "there is / are / was / were."
- **Use simple verbs** such as "to be / have / get / see / find out."

<u>Refer immediately and clearly to all the main items involved</u>, ones that are your key words.

When referring to previously mentioned items with "this / these / such," offer more than just the pronoun:

Ambiguous		Specific
This … **These …** **It …**	becomes →	**This model …** **These patterns …** **Such a program …**

You can often save words by adding data: "This extremely effective model / program."

<u>Make the text talk about the text itself</u>.

English loves signposts, or connectives, because they tell readers how to receive new information.

Use not only "First ... second ... third . . . ," but other types of signposts:

"On the other hand . . . ." "Considering this from another angle . . . ."

"Similar to the last point is . . . ."

<u>Edit to avoid series of short—and thus choppy—sentences</u>:

Link some and embed others within their neighbors.

Short and choppy		Elegant (linked and embedded)
X costs a lot. You can't get it there often.	→	X is expensive and is seldom available there. or do you mean: *Because* X is expensive, it is seldom available there. Situation → Result = end-focus X, being expensive there, is *seldom available*.

Use the **shortest sentences** for the **strongest statements**. *("*Every mouse died.*")*

<u>Cut out every extra word</u> that performs no task.

There is / are X. **becomes →**

X exists.
X occurs.
X appears.
X arises.
X emerges.

Note: All are **Active Voice**

Avoid repeating facts. Although planned repetition of words helps linkage, you should avoid synonym-use. Make yourself clear by choosing **one term** . Do not indulge in overuse of a synonym dictionary (thesaurus). For instance, **"**Method / methodology / procedure / system**"** must never mean the same thing. **We will assume that they mean four different things**.

One paper described many identical infants with these six labels: "neonates / newborns / infants / babies / patients / subjects." Instead, choose two terms such as "neonates" or "infants," and then use "They / These" and other pointing words to refer to the infants.

Convert most verbs from passive to active voice.

Avoid ending sentences with passive verbs. For good writing, this is the kiss of death. Replace them with active voice. In Methods, passives can go in the middle of the sentence:

To X, Y *was added.*	Y *was added* to X.

Change some **passive verbs into adjectives**:

Passive verb		Adjective
X could be seen. *X was always used.* All two-year-old children *were studied*.	→	X *was* evident / apparent / visible. X always *proved* useful. All children *studied were* age two. (Note end-focus in each)

Change the verb itself:

Patients *were operated on*. Sixty *were used* as controls. Each participant *was given* X.	→	Patients *underwent* surgery. Sixty *served as* controls. Each participant *received* X.

Omit useless passive constructions:

It *has been found* that X causes Y (Aho 2001). We found that Y w*as produced* by X.	→	Aho (2001) *found* that X causes Y. X *causes* Y (Aho 2001). Y *results from* X. X *leads to* Y. X *produced* Y. Y *was* a product of X.

The citation shows who (Aho) found X. Journals tire of these useless "found" phrases.

Avoid for your own findings even the active-voice "We found that X produced Y." Simply write "X produced Y." That past tense shows that this is your finding. Present tense is for others' generalizations: "X produces Y" (16). (See the tense section.)

Use MAGIC—the inanimate agent, a non-human / non-living thing performing an action.

Table 3 *shows* . . . .
Figure 5 *illustrates* . . . .
Our results *indicate* . . . .
Our hypothesis *predicts* X.
Opinions among us *vary*.

Note:
All in
Active

<u>Upgrade most rough-draft common verbs</u> to become more **precise verbs** (see verb pages):

be see have get	→	exist observe assess measure determine possess assess confirm characterize

Note how much precision comes with such verbs!

For elegance and formality, specify meanings of "**get**" ("receive?" "become?" "understand?").

<u>Change colloquial (*puhekieli*) expressions to more formal ones</u> (see verb pages):

Colloquial		Formal
if like a lot of, lots of, plenty big	becomes →	whether (or not) such as many, several large, great

Never omit "such**" with "**as**."** ("Treatment ~~*as*~~ *such as* chemotherapy . . . .")

Beware of vague "so." "*So* (thus?) X occurred?" "It was *so* fast." (How rapid?)

Avoid "too," especially at the end of a sentence.

He died, *too*.	becomes →	He, *too*, died. He died, *as well*. He *also* died.

And how hot is "too hot?"

Strengthen Negatives

"**Not"** is so common **in speech** that it **frequently loses a letter**, becoming a contraction such as "can't / don't / wouldn't." It is doubly contracted in "dunno" for "I don't know."

In writing, "not" **is always a weak word. Murder the word "not" in three ways:**

Substitute negatives OR

Substitute negative prefixes OR

Change to negative verbs or use negative adjectives

Strong negatives	Weak	Stronger
no none never	There was *not any* X. *Not one* patient survived. They had *not seen* X before**.**	*No* X *existed* / appeared. *None* of the patients survived. *Never* had they seen X before**.**

(Note: Beginning a sentence with a negative is powerful.)

Strong prefixes	Weak	Stronger
un- in- im- non- dis-	The cause is *not* known. The text was *not* coherent. The task was *not* possible. Results were *not* significant. This drug is*n't* made anymore**.**	The cause is / remains *un*known. The text was *in*coherent. The task was *im*possible. Results were *non*-significant. This drug has been *dis*continued**.**

Verbs / adjectives	Weak	Stronger
fail lack absent insufficient incomplete	The plan did *not* work. The solution did*n't* have X. X was *not* in the samples. Controls did*n't* have *enough* X. The test was *not finished***.**	The plan *failed* (to succeed). The solution *lacked* X. In the samples, X was *absent*. Controls had *insufficient* X. The test was *incomplete***.**

If X is "missing," call the police!

Your final step in revising is to check to whether **each verb agrees with its subject in number.**

1. **Locate every verb** (Good sentences have only one or two.)

2. **Scan to the left to find its subject** (often located far away).

Read this too-complex and difficult practice-sentence with its **five substantives** in **bold.**

Which one is the subject of the verb?

"The actual reason for these changes in policy that seem to alter the newest reorganization plans for these hospitals is / are surprising."

Basic Methodology II: Passive vs. Active Voice

Active and passive—like major (*duuri*) and minor (*molli*) keys in music—are the **two types of voice. Tenses** are unrelated to voice; tense indicates **time**.

Note the **difference between tenses**—present, past, and perfect—**and voice.** The English passive always includes two to four verbs and allows the addition of "**by**" someone / something.

• **Present** tense, **active** voice: "he finds."	**Passive**: "it is found" (by X)
• **Past** tense, **active**: "he found."	**Passive**: "it was found" (by X)
• **Present perfect active**: "she has found."	**Passive**: "it has been found" (by X)
• **Past perfect active**: "she had found."	**Passive**: "it had been found" (by X)

And even a **future passive** is possible—though horrible: "The test will have been given"!

As recently as 1997, Paul Leedy insisted, in his book *Practical Research, Planning and Design*, that "the researcher … should be anonymous. The use of the first-person pronoun or reference to the researcher in any other way is particularly taboo. … **All of the action within the drama of research revolves around the data; they, and they only, speak**." (Emphasis mine)

> **My response: Then why not let the data speak? Here, Leedy himself elegantly states that the action . . . revolves—in active voice. He has "data" speaking in the active voice, as well. These are fine inanimate agents—non-living causes of actions. If such agents serve as subjects, we avoid any need for personal pronouns to call the researcher(s) "I" or "We."**

Leedy continues, "**The passive voice … is used to indicate** [**Why not "the passive voice indicates"?**] that no identifiable subject is performing the act. It is a kind of ghostly form of the verb that causes events to happen without any visible cause being present." Then, "Note the **passive** voice construction in this sentence: '**A survey was made of the owners of the Rollaway automobiles**' or '**The researcher made a survey of the owners of Rollaway automobiles**.' … Here we have [an] . . . intrusion of the researcher. … The best research reporting does not use it."

> **Instead of the passive verb or "the researcher made," why not "A survey of the owners . . . showed that …"? All surveys producing results have already been "made." In the active, this is both shorter and stronger.**

He adds that passive voice verbs can even "suggest events … in the future without any indication of who will do them by using the **future passive** form of the verb … 'The test *will have been given* before the students *are permitted to read* the novel.'" These two passives consume eight words.

Because all tests, once finished, "have been given," why not: "After the test / after taking the test, the students will / can then read / will be able to read the novel"? Active voice and short.

Do you worry about journals' accepting papers written entirely in the active voice?

Although **active voice is rarely possible to maintain throughout Methods**, in ***Nature Medicine,*** authors freely use "We, we, we"! That means lines like

"We processed the samples. Then we rinsed the residue in a solution of . . . ."

Here are more empirical data (Note: The word "data" is plural.)

Back in 2001, biologist Rupert Sheldrake queried **55 journals in the biological and physical sciences. Only two still required use of the passive** voice. "Most scientific journals accept papers in the active voice," he said, "and some . . . positively encourage it." (*New Scientist*, 21 July 2001)

The British Medical Journal's "House Style" on the internet has for many years made the following demand:

"**Write in the active and use the first person where necessary**."

Even in active voice, however, "I/We" first-person pronouns are usually unnecessary.

(Interestingly**, "our" seems popular, even when the writer avoids "we."**)

The valuable inanimate agent allows you to avoid these pronouns and use active voice.

The *mice* each *received / ingested* 20 mg daily.
The *reason* for X *remains* unclear**.**
Results indicate that our hypothesis is correct.
The *evidence suggests* an alternative cause.
All *data came* from X. (We know they did not walk on their own feet.)
Our *laboratory provided* urine samples.

Save passive verbs for when they do, however, prove useful:

"Some of us *will greatly miss* Professor Aho" implies that some will be quite happy he is gone. Avoid sending this sentence to his or her widow or widower!

Instead, "(The late) Professor Aho *will be missed*." ("Late" is a polite adjective for deceased.)

To be gentle: "You're fired / sacked" is "Your candidacy / position *is revoked / eliminated*."

Similarly gentle, "Your breast *must be removed*." "Your results will arrive after tests *are run*."

To maintain anonymity: "The suggestion *was made* today that nurses should go on strike."

To be cute: "When my great-grandmother status *is achieved*, greater respect *will be required*."

Basic Methodology III: The End-focus Technique

The result may be catastrophic, as shown by our study**.**

Only one word in this first-draft sentence is important—providing new information.
Every sentence should, however, present basic **background information first, which will be the who, where, when (how, why**). **These data orient** (British "orientate") **the reader.**

- The **beginning of a sentence**—regardless of what some teach—is **only the second most important location**. **Most important is the end**. Here we find the "**what**," or the new information.

  Rewrite the boxed sentence twice. **First**, put its new information—the **what,** last. In the **third draft**, change to active voice: Use an **inanimate agent**.

- In each of your sentences place the **most vital word,** the "**what"**—a key adjective or substantive or a numerical value you discovered—**at the end of each clause / sentence.**

- Be sure that **each sentence ends with words that lead**, even **drag, you into what comes next.** This creates intra-sentence **linkage**, allowing readers to predict what the next sentence will say. Now do this harder exercise

FOCUS and LINK

.

A. Finland has the world's highest incidence of type 1 *diabetes. This disabling disease* and its treatment constitute a drain on *national medical resources*. (continue ….)

B. The world's highest incidence of type 1 diabetes occurs *in Finland. Finnish* diabetes researchers uncover some of the field's most *interesting new data*. (continue . . . .)

C. Regarding type 1 diabetes, Finland's annual incidence is the world's *highest. Its figure* for 2008 was *60/100,000*. (continue . . . .)

D. Finland has the highest incidence of type 1 diabetes *in the world. At least one nation's* mean incidence in 2008 was under 1/100 000, whereas Finland's figure, 60 times as high, raises the question why Finland's rate is *so high*. (continue . . . .)

ABOVE, SENTENCES 1 AND 2 LINK UP. CHOICES FOR THE BEST SENTENCE 3:

1. One important area of investigation is *diabetes-associated nephritis*.

2. Is sugar consumption *unusually high*, or is this rate most related to *genetics*?

3. The state finances *medical care,* and it generously supports those *unable to work*.

4. *Such a rate* requires funding of studies by the country's *top researchers*.

End-focus improves logic, clarity (*selvyys*), flow (*sujuvuus*), and cohesion (*tiivistys)*.

Note, however, that writing first drafts with end-focus as well as sentence-to-sentence linkage is almost impossible. First, the words must be on paper. Then move words and phrases around.

Start all of your writing with a fast, disorganized rough draft.
Such "bad" texts are the easiest ones to improve by end-focus and linkage**.**

- **Find the most vital, novel word** in the sentence, the one revealing the newest information.
- **Put a period** (full-stop) **after this word.**
- **Move all the words following this end-focus word back** to the left**.**
- **Often the best place to insert words is after a "that" or "which**"

She does fine work that may win her a Nobel Prize *in a few years*. →

She does fine work that in a few years may earn her a *Nobel Prize*.

Underline the 12 most informative words in this awkward (but active voice!) 31-word sentence.

A Crohn's disease patient's condition may be worsened as the outcome of the use of an excessively strict dietary regimen and also as the result of not enough empathetic nursing care.

Rewrite the sentence several times, altering grammar as needed. Shorten it!

Make each draft end with one among those 12 most informative words.
Notice how **word order and end-focus alter emphasis**.

To practice sentence flow, draft a follow-on sentence for each version.
The second sentence will **link to the end-focus word** you chose.

Here is my struggle with rough-draft sentences totaling 28 words, with four passive-voice verbs (in italics) and no end-focus. I assumed that we had already heard about drug X, so X is now boring.

Nothing *is known* about what happens to children who *are given* drug X. It *was found* that adults often have diarrhea if they *are given / administered* drug X. (3).

I first edited this by removing useless, wasted words and changing to active voice, end-focused.

Active voice required three inanimate agents: "**effect**"
"**evidence**"
"**X**"

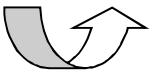
For clarity, **these sentences needed "however" or "whereas," but not in the vital first position.**

(Note: The *BMJ* and I both avoid starting a sentence with "however" or "therefore.")

The effect of drug X in children is *unknown*. In *adults*, however, evidence indicates that X frequently leads to *diarrhea*. (20 words)

A clever student then noticed that these sentences lacked linkage; the first sentence failed to flow into the second. I therefore sacrificed the best end-focus in the first sentence ("unknown") and instead focused with my second choice ("children"). Note good linkage with only 17 words.

The effect of drug X is unknown in *children*. In *adults*, however, X frequently leads to *diarrhea* (3).



Another student noticed that I was violating one of my main rules—to observe **strict chronology**. Always describe events in **chronological order—**the order in which they occur over time—or the order in which we learn about them. Now all of these data fit into one 14-word sentence!

Note that "however" and "therefore" always become stronger as they move right.
Notice the power of "however" when it serves as the end-focus word.

X frequently leads to diarrhea *in adults* (3), whereas *in children*, its effect remains *unknown*.

X frequently leads to diarrhea *in adults* (3); in *children*, its effect remains *unknown, however*.

Revision of a paragraph.

This text is intentionally silly, so concentrate only on its language.
It has **ten verbs** italicized, **all of them in passive voice. It mainly needs savage shrinkage!**

- First, locate and repair its **four errors,** ones very frequent among Finnish writers.
- Then **reduce its length from 114 words,** aiming at **a third** of its present length**.**
- **Choose active-voice verbs**.
- Try to **create some end-focus and linkage**.
- **Freely omit, alter, or rearrange words.** Each of you will edit this differently.
- Finally, **COUNT every word and figure in your version**.

The effectiveness against narcolepsy of caffeine *was tested* on humans by our group. It was effective, as *was* previously *shown* by Smith (Smith 2006) when mice, that *were found* to be narcoleptic *were given* caffeine when they demonstrated signs of narcolepsy. Therefore, an experiment *was carried out* by our group. We had 100 male narcoleptics. The initial test dose of caffeine that *was chosen* was 300 mg two times every day. In these subjects a history of narcolepsy *had been confirmed*. When they *were administrated* a dose of 600 mg two times every day, the lowering of their symptoms of narcolepsy to a level that *is considered* in literature to be normal *was accomplished.*

Article Sections: An Overview

Because some journals cannot afford to hire copy editors to correct manuscripts line by line, do examine articles in the target journal, but avoid blindly trusting them as models of style.

What seems wiser is to **trust the target journal's own writing style.**

- **This style is demonstrated in "Instructions to Authors" and in journal editorials**.
- **Every journal has its own style, so study all instructions in the target journal**.
- **Seek these also on the internet; instructions frequently change.**
- **Follow each instruction exactly**, checking and rechecking.

  If you receive a **rejection** and submit elsewhere, **follow the next target journal's instructions** equally carefully. (See Handling Reviewers section.)

Vital: **Notice the style required for your references**: either **Harvard** or **Vancouver**.

Harvard style (from 1881) uses authors' names: "(Aho 2000)" and an alphabetical reference list.

Vancouver uses numbered references, with each journal demanding different formats.

The usual formats are "... sentence end (3)." Or "... end [3]." Or "... end.[3]" Or "... end[3]."
USA UK

(Vancouver Uniform Requirements are available at http://www.icmje.org/index.html.)

Unlike authors in a **Harvard reference list**— numbered alphabetically—**Vancouver** style requires the list to follow the order in which citations appear in the text.
In **Harvard** style, date precedes article or book title; in **Vancouver** style, the date follows it.

The Hall book provides a clear **pattern for the contents of a scientific article**.

The **I**ntroduction tells what question you will be asking,
Methods tell how it was studied,
Results tells what you found,
and
Discussion explains what the findings mean.

This produces the acronym **IMRAD or IMRaD**

In "Suggestions to Authors" in the journal *Neurology* (1966; 46:298-300), Daroff and colleagues describe these **IMRAD sections as answering the following questions**:

- **"What did you decide to do and why? Introduction (This ends with what you seek.)**
- **How did you do it? Methods**
- **What did you find? Results**
- **How does it relate to current knowledge? Discussion" (This begins with your findings.)**

A wise order in which to write these sections

1. Rough version of the abstract	**5. Results**
2. Rough tables and figures	**6. Discussion**
3. End (your aim) of Introduction	**7. Rest of the Introduction**
4. Methods	**8. The final abstract**

I cannot advise this too strongly: Make tables and figures <u>before</u> you write Results.

Note: Gustavii reminds us that editors of journals and your readers have the right to ask to examine your raw data—even **5 or 10 years after publication** of results!

Therefore, **never discard your raw data.**

The Article Abstract

The abstract (now generally considered the same as a summary) is **the first thing seen.** It may be the **only part of the article that is read**.

The abstract "floats free," appearing in various databases and on the internet. **For easier electronic retrieval. front-focus both your title and line one of your abstract**.

According to Professor Lilleyman (Hall, 1998) an abstract should reveal:

- "**why what was done was done**
- **what was done**
- **what was found**
- **what was concluded**"

And . . . the abstract must be "**the most highly polished part of the paper.**"

His rules: **Include no lines that will appear again in the Introduction.**
Avoid minor aspects of Methods.
Never end an abstract with the vague, useless line: "the findings are discussed."
Do include confidence intervals (**CI**) and **P-values**.

I add, from other sources: **Short sentences**
No repetition of data in the article title
No references or study limitations.

Abstracts must stand alone and be clearly understandable without the text.

Always obey length-restrictions; 250 words? Write 600 words and **shrink it through Process Writing. If the journal instead provides a box to fill, prefer short words!**

Abbreviations in abstracts

These must be **few**, and **each full term plus abbreviation goes into the abstract. Write it out again when it first appears in the Introduction or later**.

Never abbreviate a short, single word. Never use "ETX" for "endotoxin" or "AR" for "arousal," says
the American Thoracic Society (ATS), but the ATS accepts "LAM for lymphangioleiomyomatosis."

Surely no one will ever need an explanation for pH, DNA, AIDS, or UN.

Check journal instructions; **some abbreviations are so common** in your specialty **that they too need no explanation**; one example is "coronary heart disease (CHD)" for a circulatory journal. One way to **avoid abbreviating** is to **refer to only part of the long term**.

One example: For "IRL," meaning "inspiratory resistive load," the ATS says, that after giving the entire term once, then "simply write 'load'."

An abbreviations list is useful, following the abstract, if you use many abbreviations.
Such a list is, however, no substitute for the in-text explanations.

Structured Abstracts

Many target journals require **structured abstracts with subheadings** for each section. These **help the author structure** the abstract so it **maintains the most logical order** and **omits nothing**. I thus suggest that you write every abstract with subheadings. If not required, remove them. Complete the incomplete sentences that most structured abstracts allow in order to save space. Popular **subheadings** include

- **Background "**Incidence of X is rapidly rising in Nordic countries—**"**
  or Hypothesis tested "This study tested whether X correlateS with latitude**."**

  or Objective / Aim "Our aim was to compare X incidence above and below 60 degrees north latitude**."**

Be sure you know which one the journal wants.

- **Study design and setting**
- **Samples or Subjects**
- **Methods or Interventions**
- **Measurements, Statistics**
- **Results**
- **Conclusions** (notice, no Discussion)
- **Implications** (answering "So what ?")

Informative abstracts cover all of these categories, with sufficiently detailed results.

Indicative abstracts introduce your work and describe what you did. These are useful for conferences, if requested, because you can later present results orally that may be lacking before the abstract-submission deadline.

Review-article abstracts include

Purpose

Data-identification and -extraction methods

Findings

Data synthesis

Conclusions.

Objective: To determine the influence of body weight throughout the life course on the development of clinical hand osteoarthritis (OA).

(Again, journals want either Background or Aim / Objective, not both.)

Methods: A British national survey was used to perform a prospective cohort study of 1,467 men and 1,519 women born in 1946. Weight was measured at birth and at subsequent follow-up visits through childhood and adulthood. The main outcome measure was the odds ratio for the presence of hand OA at the age of 53.

Results: OA was present in at least one hand joint in 280 men (19%) and in 458 women (30%). Hand OA was significantly associated with increased weight at ages 26, 43, and 53 years and with decreased weight at birth in men. Birth weight and adult weight showed independent effects, such that men at highest risk for OA represented those who had been heaviest at age 53 and lightest at birth. These findings were not explained by grip strength. No significant relationship appeared between weight and hand OA for women.

Conclusion*:* Our results show that increased adult weight is associated with, and may precede, development of hand OA, but only in men. This relationship between hand OA and lower birth weight is a new finding concerning adult joint structure and function that may reflect the persisting influence of prenatal environmental factors.

(This is a more concise, end-focused version of a 2003 abstract in *Arthritis & Rheumatism.* Its citation is in Appendix II, along with a version of its Introduction.)

Repeating abstract lines in the rest of the article. One writer created an excellent abstract and then copied it piecemeal throughout his article: Two lines from his abstract began the Introduction, more lines from his abstract began Methods, some lines appeared in Results. The Discussion ended with exactly the same lines as in the Abstract. **I call this not plagiarism, just laziness. Some members of the European Association of Science Editors (EASE) disagree. You write a good line, said one, so why not use it again? But the abstract is unique, comes first, and who enjoys reading repetition? We learn nothing more on the second reading.**

Key words go here, below the abstract**.** Remember **each journal's own limit on their number.**

Some journals want you to avoid choosing as key words any words already in the title.

Key words in **Vancouver style** must be **alphabetical** and should come from any index of subject headings in your field that the journal recommends.

No one can say often enough:

Always study each journal's instructions extremely carefully. Obey all of the instructions.

Titles & Authors

Titles Not too general:

> Trends in living alone among elderly Finns

nor too detailed:

> Figures for living alone among 3 000 men and women aged over 65 in southern Finland from 1950 to 2000 rise from 17 to 37%

Professor Lilleyman (Hall, 1998) remind us that **even before reading the abstract, we read the title. A** poor title may result in immediate prejudice against the author. He prefers that the title be **descriptive and tell only what the article is about—neither why you wrote it, what you found, nor the conclusions** that you reached. He might prefer the very first title on this page.

Björn Gustavii would disagree; rather than a **descriptive title** he prefers to give a suggestion of the outcome with a **declarative title.**

(In example two, "rise from 17 to 37%" is more than a suggestion! It is too specific for a title.)

Descriptive: Influence of aspirin on human megakaryocyte prostaglandin synthesis

Compare this to the **declarative title** of the classic article by Nobelist John Vane (*Nature,* 1971):

Inhibition of prostaglandin synthesis as a mechanism of action of aspirin-like drugs

Notice that this title needs no verb, because of that powerful "as."

Verb or no verb? I dislike a full-sentence title with a temporal (tense-showing) verb. Check your own reference list for this article or thesis. Do you find many whole-sentence titles: "X causes Y" versus "X as a cause for Y"? Although lacking front-focus, the version below is preferable to the full-sentence title with "rise."

Comparative demographic population-based study of trends toward living alone among those over 65 in southern Finland, 1950-2000

Avoid articles in titles, except a "the" preceding unique items ("only," "usual," "best," "elderly").

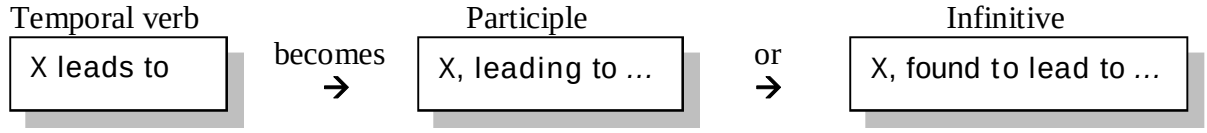
Increased solitary living among the elderly of southern Finland, 1950-2000: A population-based study

This is professional, and that colon (:) is popular. We have dropped from 24 to 14 words and moved the focus forward. To be very concise, we could write

Living alone among Finland's elderly: Trends toward an increase, 1950 to 2000 or

The elderly in Finland: solitary living, 1950-2000

To avoid sentence-titles, **change their temporal verbs into participles, or** even **into infinitives**.



Big Error! Using past tense in a title in English.

Unlike Finnish newspaper practice, **all verbs that do appear in titles must be in present tense.**

"Surgery ~~saved~~ saves leg." "X treatment ~~succeeded~~ succeeds in Y disease."

No abbreviations in titles. Unless it is pH, DNA, or AIDS, **write out each full term in the title**.

When it again occurs, probably in the abstract, write it out and give the abbreviation.
Do this again, once, in the body of the text.
"Our use of magnetic resonance imaging (MRI) began in . . . ."

Authors

Editors often now require a **declaration of participation** stating each author's contribution. You must thus be able to **justify the actual contribution of every author listed**: Original idea? Planning? Data collection? Statistics? The journal may even print, in the article itself, a list of each of their roles. This serves to discourage an authors list numbering 50, even 100!

Often each author must sign a statement agreeing to be an author and accepting responsibility for all that the article contains. This also helps discourage the vice of listing many authors, some of whom may never have read the text and may accept no responsibility, especially not for fraud. Fraud is increasing.

"**Contributors**" at the end of the article—if the journal prints this—can include those who provided aid, but **insufficient aid to be called authors**. Thank other individuals in **Acknowledgements.**

Closely follow **journal style for authors and for degrees, if included:**

Aho, A.
A. Aho
Aho, Antti
Antti Aho, MD, PhD

In English, degrees never precede names:

~~MD A. Aho~~
A. Aho, MD

Note the commas around each degree.

How does the journal link authors' names with their institutions? With superscripts (a, b, c, 1, 2, 3, or symbols such as *)? These guide the reader to footnotes giving their institutions.

Tables & Figures and their Titles & Legends

Use a **telegraphic title style without verbs or articles:** (These are descriptive titles)

> Levels of enzyme X in melanoma
> Influence of European Union rules on Finnish medical services

- **Avoid repeating the table title or figure legend in the text**.

  Example: In a text, this sentence: "Table 6 shows the condition of molars assessed by the Wibble Method" should never appear immediately before the table itself, entitled

  "Table 6. Condition of molars assessed by the Wibble Method."

  Instead, describe some Wibble results and add the table / figure number in parentheses:

> This particular method predicted 78% of third-molar caries (Table 6).
>
> OR These data suggest a trend toward a 2% annual rise (Figure 3).

> **One table per 1000 words** is appropriate, **laid out tall & narrow**--not wide & flat.

Journals avoid printing a wide table across two pages; rows often fail to line up exactly.

- **Number** all tables / figures **in the order of their appearance** in the text. **Mention each one, preferably only in parentheses**: (Table / table 6), (Figure 3 / fig. 3), (Figs. 3-4*).*

- **Avoid tables containing fewer than six or eight figures**. In the text itself you can write: "Of the ten patients, one lived for 6 years, one for 8, three lived for 10, five for 11." These few data (eight figures) need no table. Note alternating **word-vs.-number style**.

- Similarly, avoid telling us in the text more than three or four findings from a table. Just generalize as to what is most important, is the highest or lowest or is significant.

(My **absolute rule: Always create tables and figures before writing Results**!)

- **Most readers study tables and figures first**, so save them from any need to search through the text to understand any term or any abbreviation.

  To do this, explain each term or abbreviation in a footnote. Alternatively, give the abbreviation in parentheses in the title / legend ("Figure 1. Three Populations of obese (OA) and lean adults (LA) in Finland, 2005)" or provide the abbreviation in a column heading.
- **Omit from the table title,** however**, any words appearing** (so nearby)**,** word-for-word, **as headings for that table's columns. Remember, every word costs the publisher money.**

Avoid heavy repetition in tables of any words, phrases, abbreviations, or numbers. If your table includes columns of many (more than five) identical words or figures, re-think its layout.
No column should contain a stack of identical words or numbers.
Omit repetitious items entirely.

- Omit identical words where possible.

Stage 1 ~~Stage~~ 2 ~~Stage~~ 3

Indent subordinate items with a tab and single-space them.

Obesity in children in adults

Gustavii says that the only **single-spaced** lines in an article manuscript should be these **indented** subheadings.

In a table, **each column must be justifiable. Replace some data by footnotes** or by words in the title? As for **layout,** Gustavii feels that numbers being compared are easier to read if they **follow down the columns, not across**. (**Columns are vertical, rows horizontal**.)

- State the **number of items or subjects in every title / legend or in a column heading**. Replace any column of identical figures with— perhaps in the title—"(n = 20)." **Use a small "n" for a portion of the total, and call only the grand total "N."**

- A column containing mostly **identical P-values** is **unnecessary**. **Place footnote symbols in other columns for any significant P-values**, and below the table give P-values and mention the statistical tests providing those values. Example: * All P < 0.001 (Mann-Whitney U-test)

- **Two horizontal lines** at the top of each table to separate levels of specificity are usual, with one line across the foot of the table. Separate items by spacing, not by lines.

  Never use vertical lines in a table or as a figure background. Journals dislike grids.

- Into each blank space in a table add a **space-filler (—)** to guide our eyes across columns.

- Ensure that **multiple-part figures or tables have clear numbers or letters** nearby (1, 2, 3; A, B, C), with letters consistent in case, upper (A, B, C) or lower case (a, b, c).

- In figure legends, **show your actual symbols** or print them on the figure itself.

  Write "The men (■) numbered 16" in the legend or put "Men – ■" on the figure itself. The latter is now preferable. Otherwise, is this symbol a "filled," "black," or "solid square"? Is "o" "unfilled," "white," or "open"? Editors despair of multiple symbol-synonyms.

- If you give **names instead of examples for lines on a graph**, write "broken" or "dashed" (- - -), "unbroken" or "solid" (—), or "dotted" (. . .) lines.

Never vary both lines & points except in the rare cases of their close overlapping. For overlapping curves, you might lengthen the intervals on an axis.

Gray **areas** are "shaded." Dotted areas are "stippled" ·∴·∴·∴ .
Write "hatched" for /////// or "cross-hatched" for XXXXX. Or just show these.

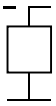
- As **footnote superscripts**

  Vancouver style is *, †, ‡, §, II, ¶.
  When you need more, you start doubling them, as in: **, ††.
  Avoid odd symbols such as dollar ($) or pound (£) signs! **Check target-journal style**!

Many now prefer as superscripts "**a, b, c, d**." P-values usually have ***** and ****** and *******.

If the journal uses superscript Vancouver citation form, never confuse us by your choosing superscripts for anything else—like footnotes, numbers ("1, 2, 3, 4 . . . .")

Statisticians examining figures state that **whiskers**—in a figure perhaps thus: **mean nothing** unless the figure legend states what they represent. Maximum and minimum? SD? CI?

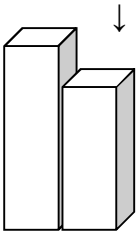


Histograms show frequency distribution.

Do not use many vertical (sometimes horizontal) bars. Label them clearly below the axis, above their tops, or on them, or add a key with small boxes showing what each pattern / color on a box means.

The bars should be two-dimensional: ▌▒ Be clear, not decorative; no "city skyscrapers."
Which corner of one of these cubes would show its value on either axis?

↓ **Bad**



Limit such **3-dimensional bars** to figures **demonstrating three variables**:

vertical, ↑ plus horizontal, → plus front-to-back values.

<u>Restrict number of bars in groupings to a maximum of five or six</u>.

cats rats Choose clearly contrasting colors or shading, hatching, or stippling.

Pie-charts show percentage distribution. They also require colors or patterns with strong contrast.

Gustavii's book (see Resources) covers tables and graphs well, with a decent pie chart as:

"(1) the **largest segment begins at 12 o'clock**;

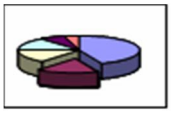
(2) it continues with **proportionally smaller portions in the clockwise direction**;

(3) the number of segments does **not exceed five**; [in my models, six!] and

(4) **labels are placed outside** the circle.

For emphasis **one sector can be separated slightly**."

I myself find it easier to read a pie in **3 dimensions, set at a slight tilt**.



Recipe for an Introduction

A good Introduction, according to John Swales, usually contains four "moves" (or strategies):

MOVE I **Establish the field: Assert briefly how significant, relevant, and important is your chosen topic.** This usually requires no citation, because those smart enough to read this publication would not demand evidence.

> The world's highest incidence of type-1 diabetes occurs in Finland.

MOVE II **Summarize your predecessors' more general research:**

> On this question, Soto's 1993 report was the earliest.

MOVE III **Focus in on your own research project. In this "however" move, indicate a gap in knowledge to be filled, the question to answer.**

> Seldom has this issue arisen. Data on this are few.

MOVE IV **Introduce your own research by stating the question you wish to answer, what you hope to discover, what hypothesis you will test. Novel methods can earn a brief mention, but rarely will an Introduction include any results.** Check your target journal on this.

> This study tests the hypothesis that X is Y.
> To discover whether X correlates with Y, we examined . . . .
> [perhaps adding] . . . by use of a new method for . . . .

The answer to this question, your discovery, or confirmation--yes/no--begins the Discussion, where the citations closely related to your own work (arguments pro and con) also belong. I dislike meeting low-numbered citations AGAIN in the Discussion.

An Introduction mentions (in Move II) **general works relevant to yours, showing that you know what has been done in this area**. You need not "start with the Romans." **Omit facts known to every scientist**. Never knock us down with a parade of facts. **Introductions are shrinking**.

Richard Smith (*BMJ*) in Hall, concludes thus: "**Know your audience**, **keep it short**, tell readers **why you have done the study** and explain **why it's important**, **convince them that it is better than what has gone before**, and try as hard as you can to **hook** them in the first line." (Emphasis added.)

Methods

Referees seem to focus half their criticism here. Although they demand sufficient data to allow others to replicate your work for confirmation of its findings, **this section must be brief**.

Some journals use **reduced font size for Methods**. Some place **methods in lengthy table titles and figure legends**. Some put your most **specific details in methods only on the Net**.

- **Observe strict chronology**:

  Report **each step / event in** a **clear time-order**, in the order that each occurred.

  Never "We gave X after Y" or "Before we did X, we did Y," but "Y was added, then X."

- **Stay in the past tense**. **Write long, and** then **cut, cut, cut** out all useless, wasted words.

- Methods will be **list-like.** If you refuse to write "we," Methods **will require** some **passive-voice verbs. Avoid placing these at sentence-end,** where they sound empty ("For X, the value of Y was used" vs. "Y was used as the value for X." Active: "Y served as the value for X.")

- **From** focus position, as above, move passive verbs back and **hide them in the middle of the sentence, or substitute adjectives or nouns. (**See Process Writing.) Revise thus:

  With **adjectives**: "X was used for Y." → "X was useful for Y / the best choice for Y."
  With **nouns**: "X was the choice for Y." "For Y, the selection of X was wise."

- **Attempt end-focus, but linkage in this list-like section is often impossible.**

- **Present** all that the reader needs to know: **Study target-journal Methods sections.**

- **Say who did what to whom. When, and precisely how**? **Define** all terms:

  For "high X," "delayed X," or "prolonged X" say how high, long, or prolonged.

  Avoid numbers or letters for groups. "Groups A and B" gain **informative labels**:

  "Milk," and "No-Milk"; "Term" and "Pre-term"

  In **abbreviating authors' names in the text**, use dots for people's names.
  The reason? Dr. **M**iia **R**aili **I**lves is no technique, and **C**arol **H**. **D**oe is no disease.

"An experienced radiologist (M.R.I.) and cardiologist (C.H.D.) performed cardiac MRI."

Observe standard (see journal instructions) **rules concerning animal treatment** and on approval by an "ethics committee." That means **a committee ON ethics—**trust me: I lived through Watergate! Though some journals may still print it, "**ethical**" would mean that all your committee members are angelic. Other uses, as in "Ethical standards / principles / review" are, however, correct.

If subjects gave their **signed informed consent**, was this **before or after enrollment**?

- **Explain in detail all randomization** procedures. Sealed envelopes? Computer program?
- **How many** were **screened** and **how many excluded**?
- **How many dropped out** and **why**? **How many were lost to follow-up** and **why**?
- **Define any blinding** (**of whom and how**?).
- **Describe controls** or control samples **as thoroughly as you have described your study—or test—population**.

  This is essential to justify your claims to randomization. How did you find / select / match controls? Incredibly, the only information provided may be

"Controls were from the general population." Who? Strangers walking past your laboratory?

Gustavii stresses the need to "**calculate sample size needed to demonstrate a difference**, **if it exists**." He wants this calculation reported in the paper and warns that the **number needed is** never the number of those originally enrolled, but **the number completing the trial**. (So subtract the drop-outs.)

If you have **complex populations or results** with complicated numbers, try to illustrate them with a **flow-chart** or **Venn diagram.** Like genealogical charts, these are clear at a glance with their boxes or circles. Be creative. Reviewers often ask for flow-charts for data that are hard to comprehend in a text, and for large quantities of data. Study flow charts in prestigious journals.

End Methods with statistics. In the statistics description, state what you consider to be **your** (statistically) **significant P-value**. "Significance was set at 0.05" or "at > 0.05" is brief but seems sufficient. Then avoid "X was ~~statistically~~ significant" unless **clinical significance** is relevant.

Avoid repeating quantities. For adult subjects, omit "years"—it is the default unit.

"Respondents were (age / aged) 40 to 60." **Omit "**years old**" or "**years of age."

"Ages were 40 to 60." "Adults 40 to 60 took part." "Men over 50 / under 50 died sooner."

But note: "Children enrolled were from 14 months to 5 years old / of age."
"Follow-up times ranged from 6 months to 10 years."

For time, **we expect readers to recognize—**in English—**figures that are years or months.** We thus write "in 1999" or even "in 1066," and "in June."

Such correct phrases as Finns' "In the year 2006 / until the month of May" sound to us like lawyer language, drama. (Note ↑ required use of "the ↑" if you use the unit.)

"The**"** goes, however, **before any superlative or unique word**: **"**The third of May / the last day**"** (See also Articles section.) For **further relevant tips,** see **Handling numerals . . . .**

Results

If you have table(s), figure(s), or both, **avoid Double Documentation**—Never repeat in the text much that appears in tables and figures, because most readers examine those first of all.

According to Professor John Norman (Hall 1998), with emphasis added:

> "What you must avoid is what any reader, editor, or assessor dreads: 'The **results are presented in Tables I to V and in the figures**.' This does not guide the readers into discovering what you want them to find but actively encourages them to find things you do not think important.
> **"You must lead your readers into following your thoughts**."

He adds that **in the Results you show the statistical significance** of your findings, and **in the Discussion, their practical significance**. He warns that if your findings do not support your original hypothesis—even if they refute it—you must report all findings.

What is the **answer to the question you asked**? Or **did you disprove the null hypothesis** with a P-value less than 0.05? What is the **power of the study**? How likely is a false negative? It is always wise to **seek aid from a statistician**.

The Results state—in the **past tense—**selected data, the most interesting results, the highest, lowest, or "not shown." (Why are they "not shown," in fact?) **Avoid passive voice**; let **inanimate agents** ("study / work / results") do the showing and producing. Or use "we," or at least "our."

Do not evaluate here. No "remarkably" (a strong emotional term; use "greatly / considerably / markedly") or "This method's efficiency was greater than expected." No "Surprisingly so."

End Results without a summary, because in Anglo-American journals, the discussion now almost always begins with a statement of your main findings. Some journals now force authors to do this by dividing their Discussion section into two sub-sections labeled "**Findings**" and "**Comment**." A structured Discussion is even emerging. See the next section.

Perhaps the journal publishing your work even combines Results with Discussion; lucky you!

Sample lines to distinguish Results style from Discussion (referral) style:

Results	**Discussion**
Of the 366 staff responding, those approving the plan numbered 89 (24%).	That only a quarter of the staff approved the plan seems surprising.
The Whammo Method performed well for our patients less than one-third of the time.	The Whammo Method's ineffectiveness may stem from its untested premises.
Absenteeism among the nursing staff of small hospitals from 2000 to 2005 compared to 1990 was four-fold. Older nurses, over age 50, were absent for fewer days annually (10 days) than were younger nurses (18 days).	Such a large increase in absenteeism involving so many younger nurses in small hospitals supports the suggestion of Piik (2005) that hospitals of this size may benefit more from our innovations than would larger hospitals.

Recipe for a Discussion

These suggestions come from *How to Write and Illustrate a Scientific Paper,* from Cambridge U. Press, by Professor Björn Gustavii (See Resources), editor of *Acta Obstetricia et Gynecologica Scandinavica* from 1986 to 1994 and teaching scientific writing since 1980 at Lund University, Sweden. His book on our compilation theses is expected in 2012.

After the Swales recipe for an introduction we have waited a long time for a similarly convincing scientific discussion recipe. Quotations indicated are from Gustavii, with emphasis added.

1. "**Main message**." This, says Gustavii, "**answers the question** posed in the Introduction [in Swales's Move IV] and includes the main supporting evidence."

   Example: These findings show that / support the hypothesis that X contributes to Y; its mode of action may be Z.

   Next, critique your own study. (Some suggest you critique your study later in Discussion.)

   Be careful with present / past tense throughout any Discussion. See Tense section.

2. **"Critical assessment**" will discuss "any shortcomings in study design, limitations in methods, flaws in analysis, or validity of assumptions."

   My own term for this is the "Unfortunately" part.

   Now readers will want to know whether others agree.

3. "**Comparison with other studies**" may be organized as:

   Your main finding
   Other studies' findings in agreement with it, differing from it, contradicting it.

   Your secondary findings (if your project is complex)
   Other studies' results agreeing or differing with or contradicting these, and so on.

Next comes my own "**So what?**" stage. "**Conclusions**" means that here you state the results' **implications** and suggest **further research**. You need no summary of findings here. They are in the abstract, implied in Results, and start the Discussion.

Here you reveal the value or consequences of your findings.

Avoid priority claims such as "This is the first report of X" or "We are the first to do this," because others may publish similar findings before your findings appear, 6 to 12 months after their first submission. Your editor will then receive the blame!

Gustavii wisely comments that "most studies could be designated 'the first,' because most of them have a design of their own." In my own personal view, to modify a claim thus: "To (the best of) our knowledge, this may be / seems to be the first report of Y" seems safe. The two modifiers make this sound rather modest.

One opponent at a thesis defense asked why a researcher would want to claim priority. Could it even be the case that no one else was stupid enough to carry out such research? Let the findings speak for themselves, he said, or merely say that they "**represent interesting and unusual findings**."

Avoid promising to publish more; you may go under a tram before you discover the findings!

In close agreement with Gustavii's Discussion pattern, the *Scandinavian Journal of Primary Health Care* offers "Instructions for Authors," providing a structure for a Discussion section with subheads:

> **"1. Statement of principal findings;**
>
> **2. Strengths and weaknesses of the study;**
>
> **3. Strength and weakness in relation to other studies, discussing particularly any differences in results;**
>
> **4. Meaning of the study: possible mechanisms and implications for clinicians or policymakers;**
>
> **5. Unanswered questions and future research."**

Reference List

- **Prefer reviews and the earliest and best articles.**

- **Check and recheck all references**

  Errors in references (incorrect or inconsistent order of items, punctuation, upper- versus lower-case letters, abbreviations) **are signs of carelessness.** Errors in citing are also common; in any article or thesis they may occur in half the citations and references. Nor is the Net reliable; it even makes mistakes in spelling, dates, or pages. Such errors disillusion not only editors and reviewers. Errors in your thesis may confuse—and publicly irritate—an opponent!

- **Be sure you own a copy of every reference cited** (for your articles and for your thesis).

- **Study the style of your target journal or style recommended for university theses**. Language revisers' tasks rarely include editing references, so you are on your own! (See page 15 for an overview of Harvard and Vancouver style.)

- **Each reference mentioned must appear in the list**, and you should have read them all. Opponents—and reviewers/referees (often unfairly) may expect to see cited their work.

  One wise opponent at a defense praised a Finnish candidate's honesty when she cited no research of his; none of his publications was, in fact, closely relevant to her thesis.

- For "**personal communication**" data, **obtain the permission** of the "communicator." Provide in the text full details concerning the source, stating whether it was "oral" or "written." No personal communications go into your reference list. List anyone's submitted **and** accepted work as "in press."

- **In citing material from the web**, give in parentheses **the date when you accessed it**. Gustavii reminds us that data appearing on each site evolve and change. His example:

  "Cited Dec.4, 2002; available from: www.nlm.hih.gov/pubs/formats/internet.pdf."

- **Submit manuscripts with references double-spaced**, to allow editorial revision.

- Obey **limits on maximum number of references** (30?)

PhD Theses / Dissertations

All nations and universities differ, so here are only a few tips on the summary /overview / *yhteenveto* for a compilation Ph.D. thesis. (Caution: In the UK, "dissertation" means MA / MSc thesis, so a safer term for both is "thesis.")

Title page: See title section. For your big day, write "12 noon," not "12 ~~o'clock~~ noon."

Table of Contents: As in titles, avoid full sentences and most articles. **Avoid five-place numbering** ("3.1.2.5.1"); even three places seems odd to us non-Finns. Finally, you or your program must make all subtitles in your table of contents and in the text itself agree exactly.

Your original publications: **You must request and receive permission from the publisher to reprint these at the end of your *yhteenveto*. I call them** "Study I**" or** "Study IV**," capitalized,** because "study" is such a common word. Then use only "(I)" or "(IV)." In a general context, "study" should not be capitalized:

"For the first study, we . . ." "All five studies showed invasion, Study II showing the least."

Reproducing parts of anyone's work—or even of your publications—in your *yhteenveto* / summary / overview itself, for instance, tables or figures, whether in full or as "adapted" or "modified," requires permission. If you relinquished copyright, you no longer own your own words; the publisher does. (See plagiarism section.) **A permission line contributed by the copyright holder must appear, word for word, on each table / figure**.

Rules on this become stricter every year, believe me. The topic of two of the last three EASE conferences was ethics; almost half their presentations and workshops involved plagiarism.

Publishers are not journals; publishers are Elsevier, Springer, Wiley—all reachable on the net.

"Reproduced by permission of the *Lancet*" includes article title, authors, everything through the page numbers. A required permission line may thus be longer than the table title or figure legend itself. If you retain copyright, however, you need no permission line, but you might politely inform readers thus: ". . . appearing originally in [journal name, issue, page, and date]."

Referring readers to your original articles with "(See Study III, Table 6, p. 888)" saves effort, pages, and cost, but **e-theses omit the original articles.** Unless they are easily accessible, tables and figures should thus probably be reproduced in the *yhteenveto* itself **with permission**!

To repeat: If you gave up copyright, you need copyright-holder's permission to reprint your or others' material in your thesis summary, meaning **even your own lines, without quotation marks** around them, **or your own table or figure without permission and a permission line—you are plagiarizing**. Complex methods may, however, be carried over from your attached articles. (See your faculty's current rules and see, here, the plagiarism section.)

Rules for permissions change rapidly. One student in 2010 wrote for me this adventure story:

"1.) One article had a link to the "Rightslink" service where you click permissions/copyright on the webpage. You need to register for the rightslink service, but you can do that from the same link. Apparently some things they charge for, but I got permission to use my articles in my thesis using this link, just by filling out the information (that I am an author and that the manuscript would be reprinted in my thesis).

"I looked up the article that I used a figure from by using the same link, signed in, and clicked on the relevant boxes. (One figure, thesis, and so on). They charged me nothing, and gave immediate consent. I just have to acknowledge in the manuscript using a specific sentence ("Adapted from –").

"2.) One journal automatically (when you go to the article and click on permissions/request) grants you permission to use their manuscripts freely for non-commercial use. I just printed this document.

"3.) One of the journals was discontinued, but luckily (thank you, google!) I found the volume of this journal (in which the article that I used a figure from appears) on google scholarly. On the first pages of this volume (not in the article itself), they stated that all material is public and can be used freely (for non-commercial use). I wasn't able to print this directly, but I copied the screens of these first pages of this volume into paint and then printed them.

"Yugh. This won't prevent me from getting a Ph.D., but **I sure wish I'd done this ages ago**." One **journal refused permission** to attach an article, so its author attached only a photocopy of the first page of a reprint, which showed the journal name, dates, and his article's abstract.

<u>Literature section</u>:

This may be the most difficult part to write. **Never plagiarize lines from others' or your own published articles** (see Plagiarism). Close book / journal and create fresh wording (paraphrase) or put irreplaceably elegant lines between quotation marks. Notice how carefully I quote and paraphrase to avoid plagiarizing in "Recipe for a Discussion." **No cutting & pasting**.

As to font, **italics are expensive and difficult** to use consistently; make your own yes / no decision.

<u>Aims</u>: Avoid repetition: End the introductory line ("The aims of this project / study / work are the following:") with enough words so that each aim in the list contains only new information. An aim is not to investigate a topic but to discover truth. Avoid synonyms like "to investigate / to explore / to determine," or you sound like a thesaurus. **Synonyms are a curse in all manuscripts**.

Use blank spaces, numbers, or **black balls** (● "bullets," an old printers' term) beside each aim, or number them. No French lines (—). We do not recognize what they are; do the French?!.

Make all **AIMS grammatically parallel,** for instance, all infinitives, all participles, or all nouns.

Model Aims: The main aim was to discover the effects of drug X on Y disease.
Specific aims were to discover the

- effect of long-term X treatment of Y-affected patients on their cell-mediated immunity (I)
- long-term efficacy and safety of X in Y-affected patients (II, V)
- pharmacokinetics and long-term safety of X for infants under age 2 (III, IV).

Methods and Results:

In **Methods**, try to avoid much **cutting and pasting** of Methods from your original articles. Paraphrasing biochemical methods is, however, so difficult that some techniques can usually be carried over from your articles with little alteration. See page 61, 25, for suppliers' addresses.

In **Results**, definitely avoid plagiarizing passages. Any identical phrasing should appear between quotation marks. State the facts in your own fresh words. Years have probably passed since you wrote your articles. You have matured, and your thinking and language matured, as well. Re-state what you found. Paraphrase yourself as you paraphrased others' lines.

Now, in the medical faculty, "**cut and paste**" is illegal. Do not imitate theses from a year or more ago which lack permissions and do plagiarize. Constantly picture your thesis as an **ethesis**, flying by net around the world. Its most eager readers will be those from whom you are tempted to plagiarize. Beware. Sanctions and academic blacklisting are becoming more frequent.

Try to create new tables and figures synthesizing or consolidating study data from several or all of your studies. Opponents seem delighted with such syntheses. Opponents, reviewers, and editors also seem to appreciate **flow charts** and **Venn diagrams**. A picture is worth thousands of words.

One opponent happily praised a thesis because, after reading the original articles, he did not meet the same lines again, cut and pasted into the ***yhteenveto*! Its language**, he said, **was "fresh."**

A student's tip: Conclude sections or subsections with lines providing a "**take-home message**."

Discussion:

In a thesis summary or monograph, you may **start the discussion with background**. You need not state your findings first, as in an article.

Beware, however, of repeating the Literature. The Literature section will be more general or historical. Try to avoid citing many or even any of the same works in your Discussion that have appeared in your Literature section.

As in an article, discuss your results / findings, rather than repeating each in much detail. Remember that yours and others' theorizing is in present tense. (See the tenses section.)

Acknowledgements

Acknowledgements, essential in theses and also appearing at the end of some articles, may be left until too late and thus receive zero editing. Everyone, however, reads thesis pages attentively, particularly while in the auditorium awaiting the start of your defense. This reality means . . .

Be exquisitely polite. Failing in politeness can be risky; some errors can even be hilarious.

A native English-speaker can most accurately **judge the between-line connotations** of words or phases. Unedited text may include startling phrases that you innocently considered proper.

Beware: "I acknowledge the aid of NN." This is merely a **cool nod of the head**. Similarly, the adjective "competent" describes minimal ability; it is almost negative.

Never call your**self** kind, as in "I kindly thank her." Very bad! **Others kindly aid YOU**.

Suppose that A did far more for you than did B, but B is of higher rank. Or you must praise G, whom you dislike. One solution is to **praise that person's skills—**"NN has great expertise in X and Y"—**avoiding adding that NN used none of these skills to benefit you**!

Actual examples that required immediate rescue:

"NN serviced / satisfied all my needs" sounds like master to servant—or worse!

"Thanks for all those educational experiences during nights in the lab." What fun! (Omit "-s.")

"I appreciate all their excellent implications." Whatever did they imply (hint at)?

"I thank Professor Blit for her relentless aid that made the topic truly pellucid." Relentlessness is harsh and merciless; "pellucid" is rare, a fancy term for translucent.

"My little sun brightened my days." Presumably "son"? Say "our son," unless divorced?

"I want to/wish to thank N," is an expression some dislike, because it seems to mean "But I cannot, because . . . N ran off with my wife / husband!" Write only "I thank N."

Avoid the task of creating **a dozen splendid phrases** like:

"**H**eartfelt thanks go to / My deepest appreciation / deeply indebted to / I warmly thank / my sincere gratitude goes to / X deserves thanks / X earns my thanks / my gratitude overflows—"

Instead, collect helpful individuals into cohesive groups.
Use one gratitude phrase at the beginning of each group's paragraph.
One phrase or line per person then shows why you are grateful to each:

> "My warmest appreciation goes to A for his constant wise guidance, to C for her humor and cheery encouragement, to D for his aid with statistics, to E, G, and K for their faithful support, and to L and M for their excellent laboratory assistance."

Avoid giving both title and degree(s): "~~Professor~~ Timo Koponen, ~~Ph.D~~" Omit either one, unless forced (as on page one of the thesis) to use both. My preference is for thanking "Professor Koponen" and "Docent Vehkalahti," with no degrees, because **everyone at these ranks has a PhD**.

In English, degrees never precede names. Never write "~~MD~~ Antti Aho" or "~~PhD~~ Carol Norris."

I prefer **omitting all degrees** like "MS / MSc," "MD" (lääk. lic.), or "PhD" (tohtori, doctorate).

> Professor Björn Gustavii is of the same opinion, saying bluntly that **no degrees belong in article acknowledgements. I would extend his advice to theses**, as well.

For those **without either professorships or docentships**, reorganize the names so you can say "My deep gratitude goes to the young doctors in our group: Antti, Tero, Esko, and Lisa."

Perhaps "To my co-authors not elsewhere mentioned, I offer my sincere thanks."

For **technicians**, "We all depended on the expert staff of the lab, especially Timo Ui and Vivi Poo." Adding "Mr." and "Ms" or "Mrs." seems rather insulting. You seem to be trying to **conceal the fact that some people hold no degrees**.

Notice, however, that no one ever provides the academic degrees of parents, siblings, or spouses.

That definitely does not imply that these people have earned no academic degrees.

Usually acceptable to all—**degree-holders or not—with or without their family names,** is

"I could not have succeeded without my invaluable / precious / irreplaceable neighbors Asi, Celia, Jyrki, Tomi, and Walter; nor without Sari, Harri, and Mari of the running gang."

The usual **order of persons honored** is department head, director(s), special mentors, co-authors, reviewers, reviser / author's-editor, colleagues, technicians, close friends, less-close friends.

Then build up again to less-close relatives, closer ones, your child(ren), and any spouse / partner.

No one regrets giving generous thanks, but you might regret being too stingy.

Should you include your **siblings**? Of course. Avoid, however, thanking someone for "nursing" your baby (means with breast milk). Write "cared for my [poor neglected] baby"!)

Thank **in-laws**? (Yes.) **Young children**? Yes! Children grow up to examine their parents' theses. Try to treat all of your offspring equally.

Please vary the oh-so-frequent "Little Suvi reminds me of what is truly real / important in life."

Somewhere, how about thanking your **dog or cat**? Think what they, as well, sacrifice for you!

Why fear **emotion**? Why avoid **humor** or even **personal, private allusions**? This event occurs once in your lifetime, and even men have been known to write four pages of Acknowledgements full of grateful affection and humor.

Thank all **funding agencies** and remember "the" in front of almost all of them. Read these aloud to check by ear. "The Finnish Medical Society, the Generosity Foundation," but "Kuopio University."

Thesis dedications on the first free page are nice. These have ranged during my decades here from "Dedicated to my saviour Jesus Christ" to "In memory of my beloved cocker spaniel who led me into veterinary medicine."

Gustavii warns against choose mottos or wise quotations in the front that have become clichés

or ones that could apply to any thesis. Choose, if you must, some words very relevant or said by a noted scholar in your field . . . or by your beloved mom, dad, or child.

Acknowledgements in articles Remember to **ask permission to acknowledge** Anyone disagreeing with your findings may prefer that his / her name be omitted; **otherwise you are indicating endorsement** of your study and its findings.

Example: "We thank Ilpo Aho of Oulu University for the X samples, Sara Kohn for statistical analyses, and the Tivoli Company of Copenhagen for the reagents." (Note to Finns: Neither "the reagents ~~used~~" nor "the ~~used~~ reagents"!)

No degrees included, but "Professor Blim of Oxford University" is okay if she donated essential specimens or advice.

Because of the new journal rules to specify the contribution of each co-author and the huge proliferation of authors (up into the hundreds for some papers!), those aiding you, but not sufficiently to earn co-authorship, can receive acknowledgements at the end

Some journals refuse to publish any personal acknowledgements, especially for aid in the laboratory or statistical assistance or language revision.

Model Acknowledgements

This is a disguised actual complete acknowledgements in one University of Helsinki medical thesis, adapted and slightly shortened for this book with the author's permission**.**

Start with something like **"**My warmest gratitude goes**"** continuing:

. . . to Professor NN for her positive and encouraging approach regarding this research and also otherwise.

to my supervisors Professor NN and Docent NN. Professor NN suggested the topic of this study and had trust in my capability to complete the work even at times when I myself had none. As head of the Department of X, he has been my supervisor in clinical work as well. Docent N's supportive attitude and quick responses to any questions concerning this study have been invaluable [note that this deceptive adjective means too valuable to describe].

to the official reviewers Professors NN and NN for their constructive critiques.

to Professors NN and NN, my clinical supervisors, for their collaboration. Professor NN has always provided me with prompt information when needed. NN's help especially in the very start of the study, but also later, has been irreplaceable. NN is also my coworker at the X Department and an admirable person and expert to work and have discussions with.

to NN for reviewing the language of my thesis and NN for her author-editing and her useful English courses.

to all the participants in this study.

to all of my colleagues and present and former fellow workers at the Department of N. Twelve years ago I knew nothing about X, specific or otherwise, but from the very beginning I felt appreciated and accepted as I was and received so much support and friendliness that it still carries me along. You have all taught me so much. In contact with each person, adult or child, new things evolve, and we along with it.

to my wonderful parents-in-law, N and N. We have had many great times together and will hopefully have many more.

to my loving parents N and N, my adorable big brothers and my dear little sister and best friend N and their spouses and children. We live in close contact, especially during summer, in the lands of our ancestors in our leisure time paradise in X, which has been the root of my being and well-being since childhood. I am very fortunate; I realize that.

to my N [husband] and our lovely children N, N, N, and N, I am ultimately grateful for our love and companionship. Both being medical doctors has turned out positive in our relationship, and N's hard work has enabled me to work part-time, be available to the children, and do some research somewhere in between. Our best creations ever are our children, who have loyally put up with my recurrent absentmindedness and bursts of bad temper, and helped me place things in the right order of importance by their mere existence. I will also have to mention our little dog N who has numerous times during this process healed my wounded pride and self-worth with her ever-ending affection and approval.

This work has been financially supported by N, N, N . . . to whom I am sincerely grateful.

Case-Reports (With thanks again to Björn Gustavii)

A case report may **formulate a testable hypothesis**.

> (Present that single, deliciously unusual case . . . at a departmental seminar, says Professor Gustavii.)

A case report may also prove useful—and thus deserve publication—if it **reports a new diagnostic tool or a new treatment**.

A case report usually occupies **no more than two pages** (double spaced) of running text and contains about **five references**. Since it is too brief to constitute a literature review, do not label it as one.

A case report seldom requires more than two authors, as surely only one would perform the observation of the patient. One editor's query caused a surgical case-report's author-list to shrink from seven authors to only two!

Tense Choice

Present tense

1. **Established knowledge**: "Finland *has* the world's highest rate of X infection."

2. **Others' general findings**: "Aho found that no evidence for X *exists*."

   This verb can be in the present tense as well, if it sounds logical ("found" → "finds,") but usually for a living author: "Aho suggests / states that X *is* Y."

3. **Your own goal** in the introduction or abstract: "This study *attempts / will attempt* / *attempted* to discover whether X *falls* when Y *rises*."

4. **Yours or anyone's theorizing**: "We hypothesize that X *is*—" "Results *may* depend on population size." "It *seems* that mice very seldom *die* from over-eating."

5. **Contents of tables or figures**: "Table 2 *includes* further details."

Past tense

1. **Specific details in** yours or others' **published work (be alert to mention of quantities)**

   "We / Aho found that the two years with the highest rates *were* 2002 and 2004."
   "Only six of the mice *survived* (Aho 1999)." (**past** tense) **But generalize to:**
   "showing that, under these conditions, very few *survive*." (**present** tense)

2. **Others' general findings if logic demands**, often in a list of findings: "At this temperature, most mice *died* (8), but after immediate air-cooling, those that *died* were few (9), and when immersed briefly in cold water, all *survived* (10)." (Note **end-focus x 3**!)

3. **All your own current work**: "Subjects *stated* their ages." "X *formed* a Y."
   "None of them *arrived*," except for things truly permanent: "The city *is* in Savo; its trees *were* mainly birches." (Cities do not move, but trees die.)

4. **What others have said:** Aho (1999) predicted that this test *is* to become the gold standard**.**
   Present tense "predicts**"** is also acceptable here; see under present tense, #2.

   When I see present tense for your own methods or results, I assume that you cannot be discussing your own work. I thus seek a citation., but no citation**,** of course, appears.

Perfect forms are fine for data most similar to yours in topic or findings: "We found that mice died at -20 degrees, and in Smith's work (2006), mice *have died* at a similar temperature."

The present perfect tense is useful: "X *has never survived* where Y *is* a common virus (6)."
The perfect brings events **up to the present**, "No one *has shown* [and still haven't] X to be true."

If I cannot decide between past and present tense, I choose **non-temporal forms (indicating no time)—such as participles and infinitives** (See section on Titles for examples).

Citations and Layout

Avoid repeating the same citation several times with no intervening citations, even if it is given only as "3" or "(3)" or a superscript.[3]

Do this by using pronouns to link findings back to their source article:

"Brown et al (1998) found X. They continued with Z. In their study, A was B; their findings also showed that Y was Z, although Smith et al (2000) have disagreed with all of their conclusions."

Never repeat parenthetically citation **data you have already given:**

"Aho found that X *is* Y (~~Aho~~ 1991)."

Choices: "Brown (2000) suggests that X is Y" or "X is Y (Brown 2000 / Brown, 2000)."

Sentence-final citations in parentheses save words and do not affect end-focus. Devoting **the second most vital position in a sentence to a name is wasteful;** instead, what belongs there is an important word. You could, for instance, begin the sentence with a powerful "Never" or "Only."

If, however, you agree closely with Brown, if you know Brown personally, or if Brown is your professor, reviewer, or opponent, then using her name as the subject of the sentence might be wise!

For **names outside of parentheses**, journal editors now seem to favor, rather than "et al.," writing

". . . Smith and co-workers (1991) succeeded." "Brown and colleagues (2000) found X."

If you choose one of these, use it throughout. Synonyms always confuse or irritate readers.

"Collaborators"? Maybe okay, but it sounds criminal!

Avoid the too-common Nordic use of "**e.g**." **in citations**: "(~~e.g., Aho 1980~~)."

Because you cannot write: "It ended.[eg 6]," or "ended [e.g. 6]," or "ended (e.g. 6)," bravely select the best work to cite. We know that other sources exist. Only occasionally will you need something like:

"(As best shown by Aho 1999)" or "(Reviewed in / by Aho, 2000)."

Saving words:
"This *is* true of measles (Pop 1991), smallpox (Pip 1994), and typhoid (Pup 1999)."

(In present tense, because these three papers are published, and this seems to be a generalization.)

Or " . . . of diphtheria (5), smallpox (7), and influenza (8)." Or "Oho [3] and Ton [7], like Iho [9], found these diseases *to be* widespread." (Note infinitive).

Font issue, italics or not

Obey your target-journal style when deciding whether to use italics. Use them for Latin (not only ***in vivo*** but also e.g., i.e., AND for every ***et al***.)? Then you must use italics for every foreign term, like ***laissez faire***, or any Finnish or Swedish word.. I find italics to be decreasing in popularity. I suspect that they are expensive.

You do need italics to distinguish genes from other abbreviations. Here is an authoritative quote from a student as to italics for genes and proteins:

"Non-human oncogenes are usually written as uncapitalized three-letter words in italics (e.g. *myc* - *italics*) while their protein products are written in roman font with an initial capital (e.g. Myc). . . . . To make matters more confusing, human genes follow a different nomenclature, so that the human *myc* [italics] gene is denoted as *MYC* [italics] and its protein product is written as MYC."

Cited from the book "The biology of cancer" by Robert A. Weinberg, 2007. Note that this book does not italicize “e.g.”

Layout

Do not copy your target-journal’s layout. Gustavii recommends using for submitted articles:

a. **Times New Roman font 12**

b. **Headings** with **three levels**:

1. bold **UPPERCASE**

2. bold **lower case**

3. *italics*

c. **No split words.** Computer programs split the same word at different points.

Opinion differs as to where syllable-breaks occur, even among scholars who are all native English-speakers. Dictionaries also differ regarding syllable-breaks.

As I recall, “democratization” can be divided into syllables in about ten different ways, a few beginning: de / mo, dem / o, and cra / tic, crat / ic. So do not try this (at home)!

To avoid splitting words, never justify the right margin. Justify left, only. Leave the right side ragged, as in this book.

Full, both-side justification necessitates splitting words, which slows down our reading pace and also produces illogical horizontal spacing and gaps in lines.

Verbs for Academic Scientific Writing

Your own **research field supplies** enough **substantives**. You need **a greater stock of verbs**.
First drafts need boringly common verbs ("to be / have / get / find out") that you then make specific.

Verbs are muscular; they move ideas along. Always, however, check connotations in an English-to-English dictionary, especially if you delight in rare words. In these groups of verbs, UPPER case indicates the stressed syllable; "+" means that this verb, spelled thus, can also serve as a substantive.

to look at
obSERVE
view + / reVIEW +
perCEIVE
reGARD +
appROACH +
be aWARE of
STUDy +

to compare
conTRAST +
match +
CHARacterize
probe +
reLATE
CORrelate +
asSOciate +
differENtiate
disTINguish

to be finding out
learn
see
search +
surVEY, (SURvey +)
inSPECT
inQUIRE
QUEry +
ascerTAIN (= check)
exPLORE
inVEStigate
iDENtify
aGREE
check +
deTECT
unCOVer
deTERmine
asSESS
ANalyze (vs. anALysis!)
CALculate

to balance
eVALuate
conSIDer
SPECulate
deCIDE
conCLUDE
acKNOWledge
ADvocate +
deFEND
conCEDE

to test
disCERN
inFORM
conFIRM
FALsify
enSURE
esTABlish
subSTANtiate
VERify

to show
INdicate
sugGEST
DEMonstrate
point out
exHIBit +
reVEAL
disCLOSE
disPLAY +
ILLustrate
exEMplify
make EVident
conTRAST +
apPROXimate
COMment on
afFIRM
asSERT
TEStify (to)
inTERpret
deFINE

to cause, from outside, something to decrease

reDUCE
curTAIL
cut +
deGRADE
dePRESS
diMINish
drop +
imPAIR
LESsen
LImit +
MINimize
MODerate
reSTRICT
WEAKen

to cause, from outside, something to increase

raise +
adVANCE +
AGgravate
AMplify
aROUSE
ELevate
enHANCE
enLARGE
enRICH
exCITE
FOster
HEIGHTen
imPROVE
inFLATE
inTENsify
lift +
MAGnify
proMOTE
proVOKE
STRENGTHen

I consider the verb deTERiorate to be always intransitive, so that nothing can "deteriorate X." X can, however, itself "deteriorate" or decrease.

Note that it cannot reduce itself, nor can anything "increase / decrease" anything else transitively. (See the Words Confused and Misused section.)

Groups of useful or problematical verbs

"ImPLY" and "impliCAtion" are common & safe, but "IMplicate" always shows blame or guilt.

Beware!
To "prove" anything is for **naive amateurs**;
it means proven forever, everywhere, thanks to you!

Failure to prove is okay,
as is DISprove, meaning FALsify.

"**X** clearly shows / undoubtedly is"
"This proved / has proven effective."
This "prove" means **shown with some evidence**.

To end-focus on a digit, use "**number**" as a **verb or** "**figure**" as a **noun**:
"Girls NUMbered 71;
the FIGure for boys was 11."

"**Answer**"→ "**reply / resPOND**" (respondents);
"**give**" → "**proVIDE** / **supPLY** / **FURnish**."

"**ConSIST**" is for ingredients (cake) and "**conTAIN**" for contents (of a pill).
"**InCLUDE**" implies less than 100%. "It comPRISED 80 men" means 100%.
"It was comPRISED of 80 men" is correct but uselessly wordy.

Upgrade spoken-English
"There is / was / were X"
to "X exISTS / ocCURS / apPEARED / aROSE / eMERGED."

These verbs do differ.
Things **EXIST permanently**,
OCCUR regularly,
APPEAR suddenly,
ARISE theoretically,
EMERGE from something.
These can also help you in replacing passives.

Handy words if all else fails:
reGARD / inVOLVE / conCERN.

"Regarding this item . . . ."
"She regarded it as complete."
"In regard(s) to this issue . . ."
"Involving her was wise."
"It involved effort."
"Concerning this danger ..."
"The problem concerns funding."

Formality Levels

Colloquial spoken, first-draft words with some synonyms, in order of increasing formality

Avoid these	Choose among these
a bit	a little, slightly, somewhat
a couple	two, a pair, a duo (for people, "couple" implies man and woman)
a lot, a lot of, lots of	several, many, multiple (see "plenty of")
anyhow	in any case, in any event, nevertheless, nonetheless
anyway	although, thus, however
besides; too	also, in addition, likewise; furthermore, moreover
enough	sufficient (insufficient is also useful)
fix (verb)	arrange, manage, handle OR repair, renovate, recondition
give (verb)	supply, furnish, offer, provide, yield
gone; none	lacking, absent; missing (think cops)
hard	difficult, demanding, laborious, time-consuming, taxing
let (v)	allow, permit, give permission for
little (= few)	few, insufficient, lacking, rare, scarce, sparse
look for (v)	try to find, seek (sought), search for
make	produce, construct, form, compose, build, create, originate, constitute
plenty of	abundant, ample (vs. sparse), numerous, frequent (occurring over time)
pretty; quite	somewhat, almost, moderately, not uncommon, not infrequent
quite X	very (a weak word), rather, considerably, noticeably, notably, markedly, greatly (Avoid "remarkably" as too emotional.)
so	therefore, thus, hence
start (v)	begin, initiate, undertake
take (v)	adopt (100%), adapt (with changes), transfer, possess
think X is	consider X to be, judge X to be, deem X to be
though	even though, although, notwithstanding
too	also, in addition, as well as, likewise
try (to)	attempt to / endeavor to
turn out (v)	prove/proven to be X (show by evidence; "He proved to be a good husband")
way	means, approach, method, procedure, manner
work out (v)	solve, resolve, determine, devise, OR clarify, elucidate

(**Sources** include *The Words Between*, JM Perttunen, 2000, and many author-editors.)

Words Confused and Misused

amount and number: "Number" goes with **countables**, as does "fewer": Fewer cells. Less sugar (uncountable). "**Each**" and "**any**" often prove useful to **maintain the singular**: **"**Of the 10**,** each patient received 3 g of the drug**."**

any: This is handy to allow you to use the singular and to include zero. **Any = 0** → ∞

"We sought correlations between age and enzyme X levels. (They surely existed.) We sought any correlation between age and enzyme X level." (Maybe nonexistent.)

chance vs. change: "Their first chance to change X will be in 2009." Careful; they sound alike.

chapter: Finns use this for almost everything! Wrong choices are extremely confusing.

1. **paragraph** = an often-indented unit usually covering one major point.
2. **section** = such as Introduction, Methods, Results, Discussion.
3. **chapter** = a long portion of a book, comprising many pages. (*Moby Dick*!)

contrary to: Overused. "On the contrary" (French influence, *au contraire*?) is argumentative!

Instead, write "Contrary to X is Y." "In contrast, X seems preferable." "Conversely, our mice survived X." "We chose the opposite**." "**The reverse is true**."**

control: (*säätää ohjata*) Use monitor / check / follow(-up) (*valvoa, tarkistaa, seurata*). "ConTROL" (stress 2nd syllable) goes with hand-cuffs, ropes, dog-leashes, tempers. Doctors monitor patients, follow them in a follow-up study, check them.

different: Avoid over-use; all things differ. Why "Six different men shared a ward"?

Perhaps to stress wide differences, "Six widely differing viral species thrived."

"**Differ**" is a good, strong verb: "These patient populations differed in ethnicity."

economical: "Economic" has to do with the economy. "Economical" is rare and suggests a saving of money (*säästäväinen*). An ecoNOMic**al** person eCONomizes.

effect and affect: "**Effect"** is almost always a **noun** and "**affect,"** a **verb**.
Learn: "We affect its effects."

The rare noun "**A**ffect" (capitalized) refers to emotions. "He is lacking in Affect."
The rare verb **"effect"** means to establish. "We hope to effect changes here!"

gold standard: Never "golden standard," as this is **monetary**—££, $$. A **metaphor contrasting a nation's gold reserves with silver reserves**.)

More usual in medicine is "**X of choice**" "Treatment of choice"?

health vs. healthy: She is healthy (adjective). She is in good health (noun).

increase, decrease: These apply only during a **specified time-period.** They may occur "**from inside,**" on their own, as in **a** lesion healing, **versus—from outside—being** cured.

Occurring within: "His pain increased." "Values increased / rose / soared." "Levels decreased / fell / dropped / deteriorated." (**See Verbs section**.)

By outside forces: "Aspirin reduced /raised / elevated / enhanced / promoted / X"

or it "reduced / lowered / diminished / X." Or "Y caused a decrease in X."

Or is X merely "higher / lower" or "larger / smaller" than is Y?

"As the length of the neonates decreases, their relative heart weight grows." (Babies shrink?)
Accurate: "The shorter the baby at birth, the greater (is) its relative heart weight."

Never write "When mountains increase in size, their number of species rises."
Write "The larger the mountain, the greater (is) its number of species."

incidence vs. prevalence: Gustavii calls these "the total number of cases of a disease or condition existing at a specific time" vs. "the number of new cases that develop over a specific time,"

Prevalence = how many now have X disease. "Prevalence is 213 / 100 000**."**

Incidence = how many develop it annually. "16.3 / 100 000 develop it annually**."**

in print, in press: "In print" means **being sold**; "out of print" means **sold out**, unavailable.
In press—more useful to authors—means now being printed, soon to appear,
Or (mainly non-academically) "**forthcoming**." No phrase "out of press" exists.

keep vs. give: "~~I will keep a talk.~~" No, you do the opposite: "I will give a talk."

But we do "hold a meeting / a conference"; we "give a party."

lend vs. borrow: Lend goes out, **from** you; **borrow** comes **to** you. Finns generously **lain**avat.

next: Near a day**,** we say**, "**See you this coming Monday**," "**Next Monday**" is in ten days!**

other: "On the one hand**,** and on the other hand," doubles contrast strength and is okay, but
never use 2 x other to refer to two related items. This is dangerously confusing.

Never "On the other hand, X . . . but on the other hand, Y **. . . ."** or, without hands,

"The other patient lost weight, and the other gained weight**." NO. Finnish error.**
Write "One patient lost weight, and the other gained (weight)**."**

She was blind in the other eye**"** = **totally blind! "Other" always means second of two.**

own: Always preceded by a **genitive:** "her / his / Jane's / their own X."

parameter: This is overused and mispronounced! Say "paRAmeter" (not "pair of meters") and reserve it for mathematically derived values like means, CIs, SDs, or constants. Instead, use "characteristics / variables / "measurements."

Similarly, avoid "**paradigm**," sounding like "pair of dimes." Model? Pattern? Ideal?

range: From smallest to largest figure, use "**range / ranging.**" **"**His temperature ranged from 36 to 40 C. Prevalence, ranging from 20 to 30/100 000, is sure to rise." (See "vary.")

risk: Most academics seem to prefer "at risk for X" (X is something not certain to come) rather than "risk of," which is lay-person's language. We can then write "The risk of over-eating for obesity." But always "risk of death," as death always occurs.

significant: Use **only for a statistical difference** (P-value), not for achievements or for human relationships, unless you have no P-values in your manuscript. Many **drop** "**statistically**" after using it once, unless "clinically significant" is relevant.

Avoid "almost / highly significant." Instead, give the P-value. (See Handling Numerals—)

similar, same, identical: These words are **not interchangeable**. "Same" and "identical" are more similar than is "similar." Brothers and sisters are **similar**, but only **identical** twins, being monozygotic, are genetically exactly the same.

since, as, while: Beware! Each of these can also have a **time-sense.**

"Since / As he came to live here, he has been studying Finnish." (Because, or in 2001?)
"Since / As / While I am busy in surgery, you look after the family." (Huh?)

We therefore **often substitute** "because" for "since" and for "as**.**"

"X accumulated in the nucleus, while tabulin was cytoplasmic" means **whereas or when**?
For any "**while**" not meaning "**at the same time as**" s**ubstitute** "but" or "whereas."

vary: Less often appropriate than "range," discussed above. "Vary" means to go up and down. "The patient's temperature varied hour by hour." Often it includes no figures.

weigh vs. weight: We weighed (verb) the neonate. Because his weight (noun) was only 1000 g, his mother felt weighted (participle) down with fear. The Mafia weighted (verb) the corpse with rocks before throwing it overboard.

worth x; worthy of x: Finns may write: "That is **worth of x**." The correct alternatives are: "That is worth studying," or, more formally, "That is worthy of study."

Confusing plurals: The **longer form** is **singular:** criterion / criteria; phenomenon / phenomena. Two words, species, series, serve **either** as singular or plural: "Aho's two series are larger than is our first series." "One species occurs in Africa, and five species occur in Asia."
Words never plural: equipment~~S~~, advice~~S~~, information~~S~~. I dislike researches.

A Sample of Preposition Problems

- absent **from**
- added **to**, not into
- apply **for** (money), but apply ointment; **apply to** the university **for** money
- approve / disapprove **of**
- agree / disagree **with**
- ask him, never **from** him
- associate **with** (and **correlate** / **consistent with**, but **relate to**, **characteristic of**)
- **at** this level (Use AT for **precise stopping-points**: point, age, temperature, stage, level, dose, dosage.) I prefer **AT risk for**.
  Finns have problems with "**at**" and with "**by**" (authorship).

- **on** average ("On average, earthquakes there occur every 12 years.")
- call (phone) her, never call **to** her
- compare **with** = seek likenesses and differences; often in the USA, **compare to**.
  Use "compared to / with" early in the sentence, with no comparative degree: "Compared to rats, mice thrived." "Finland, compared to the USA, is safer."
  But with comparative degree, with an -er modifier; use "than": "X is longER than Y, less than Z." So **avoid**: "longer compared with / to Z."

- in connection **with** not to
- introduce **to** the audience a speaker. Wrong: "I introduce you Dr. Ilo." (We say that to Ilo.)
- different **from** (always!) The **US error** is "different than"**;** the **UK error** is **"**different to."
- dissolved **in**, but extracted **from**
- the effect / influence **of** statins **on** cholesterol / **of** nurses **on** doctors
- essential **to**
- exclusive **of**
- fill **in** (USA also fill **out**) a form; **complete** a form
- foreign **to**
- grateful **to** her **for** the gift
- an increase **in** (not of) X (size?) a reduction **in** cost
- independent **of**, dependent **on**
- isolate **from**
- **at** a **mean** height / weight / level
- **participate in** (**always "in,"** except when final: "Glad you could participate.")
- prefer X **to** Y
- prior **to**
- (in) pursuit **of**
- **in** the range **of**
- similar **to**
- substitution of x **for** y (where y is what leaves)
- representative **of** (. . . this syndrome, this class of drugs)
- varies **with** (. . .weight, age)

Beware of any incorrect "to," influenced by Finnish –lle forms

PLEASE ACCEPT MY APOLOGIES FOR THE TOTAL ILLOGICALITY OF ENGLISH!

Academics: We work at the university, in the department of X. Patients in a hospital have physicians who work on their floor, or in a clinic of / at that hospital.

Students accepted by a university then study at that school.

Participle Problems

"**Using**" **often dangles**: "Using lasers, the patients' eyes were studied." (Eyes use lasers?)

"The disease was identified using the latest technology." (A clever disease!)

"The children were studied using MRI." (Such technically advanced children!)

Change "using" to "**with**" or "**by**": "**With**" an instrument, or a substance; however, as the instrument gets more complex and more automatic, one can use "**by**": by a method or technique, or a complex instrument (even "by means of" or "by use of" something).

"The patients were warmed with blankets." "By this method, we succeeded."

"Results were calculated not by computer, but with a slide rule."

"**Using**" is okay **with an agent**: "Aho, using X, did Y," even thus: "These cells, using sodium as a—"

It can also serve as a **substantive**, which is called a **gerund**:

"Using soap is wise" (is like "Walking is healthful.")

"**Used**" is one of my enemy words, like "not," "so," "get"— all of which are vague and weak, **especially "used" as a passive verb at sentence-end**. (See Process Writing section.)

Be careful with all participles ending in "-ing."

These may become "dangling modifiers." Native English-speakers make jokes with them:

"Lying across the colon, the surgeon saw the piece of suture."

"Hanging from the ceiling, the elderly nurse suddenly noticed an electrical cable."

Repair both by flipping them so that the modifying phrase comes last, next to what it modifies.

"The surgeon saw the suture lying . . . ." and "The nurse noticed a cable hanging . . . ."

Thus, another good rule: **Put things that go together close together**.

Even if the –ing participle is grammatically safe, choose your vocabulary carefully.

A Sample of Article-Use Guidelines

A / An / no article

Use with an **unspecified, singular, countable noun**.

"A man arrived" (not specified; any man).
"Use lemon juice in water to remove rust" (none is a countable).

Note: **"AN" precedes a vowel sound** (Examples: an uncommon, but a unique or a European).

The

1) When an item has **already** been **specified**:
"The study" means one already mentioned. For good linkage: "This study / These studies."

2) When an item is **about to be specified**:
"We carried out three experiments; the experiment involving mice . . . ."

3) When an item is **otherwise known** to the reader:
"The teeth were intact." (You mentioned skulls, and we all know that skulls have teeth.)

4) When a countable is **unique**:
"The best / opposite / normal / chief / first / following / present / same,"
or unmodified: "the sun / horizon / sea / water / menopause"
And "The Greek president . . ." but never "~~The~~ Nature" (but the environment).

English allows you to **avoid repetition by** using **THE**:

"We captured mice in Lapland. The animals were healthy." You can avoid writing "The animals ~~used~~ were healthy," or an error such as "the ~~used~~ needles," old needles from which you can become HIV-positive! "Used" before a noun means not new; think of a used car.

Special cases**: Body organs**—the heart, the liver, the brain, the arm, the kidneys, the bones

Institutions and organizations—the Finnish Academy, the FCS, but Oulu University,
and words unmodified: the sick, the old, and the former, the latter; the elderly, the blind

No articles for: both, noon, midnight, winter, childhood, pregnancy, birth, youth, death,
biology, history, malaria, oxygen, Ireland, Monday, June, fifteen, Table 1, Figure 3.
Note verb: commit suicide / murder, always without "the." Murder is a **verb;** suicide is **not.**

None in addresses: Department of Art, University of Texas; Joan Aho, Editor

None in above sea level, below zero, by accident, at once, at present, in case, by chance,
in addition, in brief, in contrast, in detail, in effect, in full, in fact, on time, on purpose,
within reach, beyond reach, without doubt, without warning.

Deciding between "a/an" and "the": usually "the" means 1 of 1; "a/an" means 1 of >1.

Many singular nouns need no article. Judge them by ear by creating a simple sentence:
"Prevalence may rise.**" "**Nature can heal a patient**." "**Treatment influenced it**."**
But "THE environment / study / patient / dose.**"**

Chief Uses of the Comma

TYPE OF COMMA	PROBLEM	EXAMPLE
1. List-commas	Final comma before "and." Often comma before "or."	a, b, c, and d a, b, c, or d
2. "Fetal parentheses" (always paired)	A commenting or a defining unit?	Doctors __who constantly overwork__ need higher pay. The timer__which broke__ will never work. (Test these two, with and without commas.)
3. Subject + verb and, or, but subject + verb	Clarity	Loss of signal correlates with concentration of contrast agent and relative blood volume is calculated by the X method. (Why must we read this sentence twice?)
4. Introductory word or phrase	Does an oral pause follow?	First, tell me . . . . Finally, finished reports arrived. In May, is the test complete?
5. Dependent clause (always use if initial)	Is the clause dependent?	Whereas 251 cooperated, 17 withdrew. If you wish, the doctor will call.
6. Adjective series	A comma goes where "and" could appear.	It is a tall, broad, dark oak tree. The fit, lean Arab patients survived.
7. Apposition (paired)	Identical, not defining	Paula, our director, arrived. But: Our director Paula arrived.

Punctuation Terms

(US / British form)

comma	,	pilkku
period / full stop	.	piste
semicolon	;	puolipiste
colon	:	kaksoispiste
hyphen ("n")	-	väliviiva
dash ("m")	–	ajatusviiva
dot (**for the Net**)	www.helsinki.fi	
decimal point	2.5	
parentheses / brackets	( )	sulut
brackets / square brackets	[ ]	hakasulkeet
braces / curly brackets	{ }	
exclamation mark	!	
question mark	?	
slash, slant line, diagonal, stroke, virgule	/	kauttaviiva
backslash	\	kenoviiva
apostrophe	heittomerkki ’	**it’s** = **it is,** a contraction; genitive: **its** lung one rat’s heart; six rats’ hearts
quotation marks	“US” ; ‘UK’	
ellipsis dots	. . .	But when final, add final mark**: “. . . ?/!”**
asterisk (not comic Asterix!)	*	
superscript	soon[15]	
subscript	H_2O	

Exercise in Punctuation

All punctuation in this passage is gone, except for the ellipsis dots.

Punctuate it. In some places, two, even four options will be suitable.

Abstracts of biomedical manuscripts are set out with the background first followed by the methods the results and then the conclusion to mirror the structure of manuscripts which are traditionally written under the headings introduction methods results and discussion (IMRAD) this tradition started to emerge in the late 1940s before 1945 articles covered several topics and were organized under subject headings like a book the IMRAD structure which facilitates browsing sections of the article for specific information became the norm when the Vancouver Group adopted it in the first edition of the Uniform Requirements for Manuscripts Submitted to biomedical journals published in 1979 it was therefore not authors or readers but editors who cast the IMRAD structure in stone

. . .

. . . Nobel Prize winner Peter Medawar . . . explained that the IMRAD format is based on the assumption that discovery is an inductive process arising from unbiased observations in reality however observation is inevitably biased and scientific work starts with an expectation in the light of which choices are made as to the methods used and which results are relevant accordingly he argued that the discussion should come first followed by the scientific facts and acts

Adapted from "EASE-Forum Digest: December 2008 to March 2009," compiled by Elise Langdon-Neuner. First published in *European Science Editing*, 2009, 35 (2), 49-50.

On Punctuation: the only logical system in English

<u>Commas</u> cause the most difficulty for everyone—native and non-native.

Commas mark speech pauses ("By winter, her symptoms may disappear"), but not always.

Although speakers do generally pause before each verb, no comma belongs in this sentence:
"The population near this river flowing across the continent_are in danger from a rare disease."
Although you had to breathe before "are," we are limited by this rule:

Never place one comma—a single comma (,)—between a subject and its own verb.

I categorize commas as either single or paired—calling them **wed or unwed commas**.

Single—or "unwed"—commas

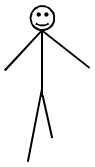
The **final list / serial comma** before "and" and sometimes before "or"—always popular in America—is now a requirement of the *British Medical Journal* (BMJ) and *Lancet*, even in this era of expensive printing when other punctuation symbols (such as my beloved hyphen) are threatened.

Beware: "The mothers recognized that prevention of dental caries required check-ups and restriction of sugary snack food, soft drinks and toothbrushing."

In the picture is a "two-legged clause." Each such clause can stand alone. **Unwed Commas** should always **separate independent clauses joined by** and**,** or**,** or but.

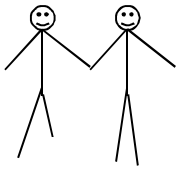
This prevents confusion: A comma warns you that a new subject and verb are coming, rather than more of the first clause such as an additional object. Study this sentence:

"Joe has three cats and seven dogs of many breeds, large and small, live next door to him."
Does Joe have three pets or ten? Note the shock of unexpectedly meeting that second verb, live."
He has three, so help readers by placing a comma after "cats."



Unwed commas also set off **introductory words & phrases**. "In time, children learn."
"Surprisingly, it worked." "Now, test the reagent." "First, tilt the flask."

I call a dependent clause one-legged. It never forms a complete sentence.



A two-legged clause can support, with a comma, a one-legged clause, →
and generally does so when the one-legged (dependent) clause comes first.

"If it rains, you'll be wet." (But "You'll be wet if it rains" is okay.)
"While the sun shines, rest." (But "Rest while the sun shines" is okay.)
Any "whereas" clause is dependent, needing a comma: Fish swim, whereas birds fly."

To distinguish an independent from a dependent clause, **say it aloud**. If a puzzled listener says, "So? **Go on**!" or "Are you **crazy**?" then it was a **dependent** (one-legged) clause.

Unwed commas also separate **adjectives** in **series** ("New, well-educated, enthusiastic nurses"). But they go **only** in a space that **could contain an "and"** ("A well-educated Filipino nurse"). Put single commas **after all places** and **dates.** "The conference begins on 20 July, 2004,
Note the four comma → in Beijing, China, and lasts for one week."

Paired—or married—commas

These go around "**comment**" clauses and phrases—ones that are **nonessential,** meaning just side remarks that do not alter or limit the sentence meaning.

They **never** go around "**definition**" **clauses / phrases** essential to identify what comes before.

This rule causes **difficulty for Finns**, because a **comma is required before *"joka"*/ *"että*."

One safe rule is that **no comma ever goes before** "**that,**" but a comma does go before "**which**."
Scientists seem, however, to favor "**which,**" **either with or without a comma**.
("That" seems to me, also, to be uncomfortable, to tie words too tightly together.)

My name for **commas that surround comments** is "**fetal parentheses.**"
The commas required around "a tough field" could "grow up" to be parentheses or dashes:

"Neuroradiology (a tough field) is her choice." "Neuroradiology—a tough field—is her choice."

Scientific papers require many parentheses (for citations, quantities, p-values), so use parentheses sparingly; limit, also, the number of dramatic pairs of dashes.

How does one recognize a **parenthetical comment**? **Say the sentence aloud**, **whispering** the words which may be either comment or definition. If the sentence **fails to make sense** without the whispered words, you have **a definition**. If it still **makes sense**, the words were **a comment**.

After a comment, a singular verb will not even change: "Juha, in addition to Outi, has come."

Test yourself: One sentence shows she has one sister, but the other shows more than one.
Which is a **comment**, and which is a **definition**?
"Her sister, who is her identical twin, arrived." "Her sister who is her identical twin arrived."

Special case **If a parenthetical comment stands by itself** (two-legged) **as a complete sentence**, then instead of putting commas around it, use two **dashes** or **parentheses**:

"These cells (see Figure 1) divide rapidly." "Many topics—HIV-AIDS was one—led to debate."

No punctuation goes before parentheses unless the parentheses contain a complete sentence**.**

Paired commas also **set off appositives,** acting like words following "i.e**.**" "Ted, my uncle, left."
But "My Uncle Ted left." "Mari Storpellinen, a UK college graduate, visited."

Semicolons (;) are too seldom used by Finns, though they offer an extra choice of pause. They link **closely related but independent clauses**, allowing a dramatic pause ("Many treatments followed; none succeeded.") They solve the problem of deciding between one long or two shorter sentences.

They also indicate longer breaks in a series of items that also need commas, such as "(mean, 60 years; range, 42-71)." Below, instead of nine commas, find five commas + three semicolons:

"The dietician provided apples, tasty, soft ones; sweet, ripe naval oranges from Spain; big, firm bananas**;** and red, seedless grapes."

Colons (:) mean "*viz*" or "**thus**" and introduce a **list** ("… are the following**:**") **or** announce an **explanation** ("The wreck was terrible: injured people, glass all over the road." "It was terrible: No one survived."). I capitalize the first word in a full sentence following a colon, as with "No."

Avoid use of a colon between a verb and its object. Write "The three best cities in the world were Zurich, Vancouver, and Helsinki," or ". . . those top cities: Zurich, Vancouver, and Helsinki—"

Dashes The "em-dash"**—**like the ones around these seven words—is the width of an "m." Dashes create a **gasp-like sudden break**. In formal writing, I would avoid using more than one or two pairs of dashes per article. "We prescribed Marevan, Emconcor—low in cost—and two expensive antibiotics." **A dash can be single**: "The drug she takes is inexpensive**—w**arfarin."

Note: Computers can **make a dash** from no spaces and two hyphens (--). Type those, and without adding a space, type any letter and then a space. The two hyphens join to make a dash.

An **intermediate-length dash**, the "en-dash," is the width of an "n," and often connects pairs or ranges such as "The calcium–sodium combination" or time such as "the period May–July."

Note the three lengths: m-dash, n-dash, and hyphen: — – -

Hyphens (-) link words, when several words stack up as **pre-modifiers of a head word**.

> "Carefully built, long-lasting, color-coordinated ward furniture" has "furniture" as head word, and shows that "-ly" itself serves as a hyphen. **Never add a hyphen after any -ly adverb**.

What a hyphen can do: "**B**eer containing lemonade" vs. "beer-containing lemonade." Different?

Head words here are bolded; do you want one or two hyphens?
"Every level of toxin neutralizing IgG antibodies in the X serum samples were high."

"That disease causing mutation in . . . ."

Note: Pre-modifying paired words need a hyphen only if they precede their "***head word.***"

"A well-known *method* is well known" takes one hyphen. "Each was 3 ml." vs. "3-ml *aliquots.*" Notice the two hyphens in "waist-to-hip *ratio*."

No hyphen in: "Group-~~x~~-A comprised 111 mice**"; a hyphen in** "Group-A *mice* were thinner."

Guess my **hyphenation rule for numbers above one**: "Six-yeaR-old boys arrived" vs. "Boys ten yearS old can act like six-yeaR-olds."

"A 6-meteR rod" vs. "a rod 6 meterS long," "**3**-daY tests" vs. "tests lasting 3 dayS."

All these hyphens act like crutches for s-less plurals. Note that even with many toxins involved, We still write "a toxiN-detection test."

Remember the required **anticipatory hyphens** in "6- to 8-yeaR-old *boys*," and "fire- and water-resistant *fabric*." Notice the reverse position: "drug-independent and -dependent *patients*."

The *BMJ* discourages most hyphen-use, but this 2009 quote in the European Medical Writers' journal *The Write Stuff (vol. 18, no. 3, p. 177)* originated in a *BMJ* office: "**You are being invited to take part in a non-invasive and ionizing radiation free arteriovenous fistulae surveillance study.**" Is the sole hyphen here even useful? Don't we desperately need two or three more hyphens?

Slashes (/), also called slant lines / diagonals / strokes / virgules), can mean "**per**," "**and**," or "**or,**" as in 10 mg/day, 11 meters/second. Avoid slashes for **ratios**; write "X to Y" or "X:Y."

Avoid "Many (231/536; 43%) died." Write "Of 536, 231 (43%) died." Or at least "(231 of 536)."

No spaces go around slashes. **My breaking this rule in this book is for better visibility**!

Apostrophes (') indicate the English **genitive or** indicate **contractions**.

Singular genitive: "Smith's research," "Jones's ideas." "Finland's health service."

Plural genitive: "All the doctors' pay," but "children's cups" and "Men's stress levels." With joint ownership, use only one apostrophe: "Stephen and Maria's children."

Use **no contractions** ("don't, couldn't, we're, I've, Sam's arrived") in medical articles and theses.

Use **no apostrophes in plurals** ("The Smith~~'s~~ Smiths are coming"), except for numbers and symbols. "MRI's, 5's," and "UFO's" are, however, evolving into "MRIs, 5s," and "UFOs."

Decades have grown shorter: "the 1930ies" → "the 1930's" → "the 1930s" → "the Thirties." (Be sure to make clear in what century!)

Parentheses / Brackets (()) **always go inside final punctuation marks**: "ended (5)." **Never place any punctuation in front of any parenthesis**.

Never: "Tests were thorough, (6) and they were also frequent."
Instead, "Tests were thorough (6), and they were also frequent." (Note end-focus x 2.)

Quotation marks (" " / ' ') go around **all borrowed words / phrases**, and around **words** themselves: "**'**Moi**'** is also French" in the USA; most Britons write **'"**Moi**"** is also French.**'**

Notice their single quotes outside, double inside. Order of punctuation also varies: For Britons, **all** marks go outside if not part of the quotation. (Did he say "Never"? but "They shouted "Help!") In the USA, commas and periods always go inside, and location of semicolons, colons, exclamation marks, and question marks depend—as with the British style—on sentence meaning.

(See Lynne Truss's best-selling humorous punctuation guide: *Eats, Shoots and Leaves.*)

Handling Numerals, Numbers, and Other Small Items

1. **Numbers:** Check your target publication for its preferred style. Generally, **write numbers** as **words for items with no units** (patients, treatments) **up to 11**. **Use number figures from one / 1 and thereafter** for items with standard units (ml, mg, km).

2. **For numbers with unit symbols** (kg, m, or C or the percentage sign, %), if you write out a number under 11, usually write out the unit, as well (6 kg, six kilograms).

Note British: "six per cent," but USA: "six percent." (But always per day, per week.)

3. **Avoid mixing words and numerals** for the **same** item in the **same sentence**.
"Of the 81 countries, only ~~eight~~ 8 sent athletes".

"~~Two boys and 11 girls~~ attended" changed to "Of the 13, 2 boys and 11 girls attended."

4. Use **ordinals** up through ten ("first . . . to tenth, then 11th . . . 160th, 161st, 163rd").

5. **Never add a space between number and percentage sign**: "6%," **never** "~~6 %~~."
Do insert a space before **any amount:** "3 mg; 10 K." One okay oddity is "120 mmHg."

6. **Use numerals for figures and tables** and never add an article or a period / full stop.
"Figure 3 is attached," **not** " ~~the~~ Figure 3. is attached."

In the actual caption: "Fig. 3. Costs for Health Care, 2000-2008 in Finland."
Some journals use Roman numerals (I, II, III) for article figures

7. **As dates**, "14 May 1998" or "14/5/98" is generally preferable. I meet "14.05.98" only in Finland. Internationally, this is recommended: 1998-05-14, but rare.

In the USA, nonscientists use "May 2, 1998," which is confusing when abbreviated in **US style** as "5/2/98," because this could mean either **February 5 or May 2**.

8. **Sentences never begin with numerals** (except in *Lancet*). A short word ("Six / Ten studies") is acceptable. Otherwise, rearrange the sentence:

Start with the magic preposition "**Of**."

Change "32 of the 76 men attended" → "Of the 76 men, 32 attended.") Or link related sentences with a semicolon ("A few are gone; 158 are left"). If desperate, write

"A total of 21 men" (I dislike "Altogether") or "<u>The</u> year 1939 saw the start of war."

9. **The decimal in Anglo-US texts** is a **point** (**5.75**). This point may be raised in some **British** texts (**5·75**). Other European countries, like Finland, accept the comma (5,75).

10. Zero before decimal point: A zero here is easier to see (0.21), although some journals use no zero here in text / figures. They may drop zero only for P-values—always less than 1.

11. **A decimal rule**: Show values under 0.01 to only two decimal places. From 0.01 to 0.001 show values to only three decimal places.

12. Large numbers: Group your digits into trios (12 345 000), with **spaces and no periods.** Or**,** in the older style**, insert commas** (12,345,000) between trios**.**

We usually insert no space into four figures, unless they appear in a column or are in comparison with larger figures: "We sent 1511. But "We sent 1 511, not 15 120."

Can your "1999" be mistaken for a year? Do we know whether "the 1999 cows" were that **many**, were **in that year's project**, or **were born** then?

13. P-values: Björn Gustavii says that because **P > 0.05** means "**unpublishable**," give **exact P-values** (**P =**, not **P <**) for values **above 0. 001**, using "**P <** " **only for 0. 001 or less**.

Check each journal's preference for the symbol: **P / p or *P* / *p***.

14. We have no plural percent, no ~~percents~~**;** use "percentages,"
Usually "days," "weeks," and "months" should be written out as words.

15. Ratios can be written as 10:1, to mean "per" or 10 to 1. We can separate items as "per" with a slant line or slash, as in "cases/year," but some advise never placing more than one slash in a series (not "~~cases/year/country~~," but "cases/year per country"). (See under "Slash"). In text, though maybe not in tables, "6/18" may confuse; write "6 of 18."

16. Cite sources according to target-journal style. Check how the journal, in **Vancouver** style, spaces citation numbers, either on the line or as superscripts (6, 8-11 or 6,8-11?).

In **Harvard** style, check for **comma** (Aho, 1999) or **no comma** (Aho 1999).

17. Superscript figures go outside the punctuation in **US** style (". . . ended.[6,8,9]").

The **British** (not the *BMJ*) **often** use the **reverse order**—like ". . . this[7,11,14,16,21,28]."

18. For readability, some prefer spaces around = , -, +, ±, < , >, and P. Check journal.

19. Always state (vital for **credibility**) the total **number of items in your data.**
Put any % into parentheses:

"The 63 (17%) who died—" To write merely "17% died" means little.
Was that 17% of 10, of 100, or of 1000?

20. Remember: **The shorter item goes into parentheses**. **Never separate a percentage from its figure**: not "~~45 of the 60 (75%) died.~~" **Change to** "Of the 60, 45 (75%) died."

21. **Prepositions before numerical figures require "and" or prepositions between figures**:
"Between two and ten men," and "from six to eight days."

In text, I prefer "aged 40 to 50," but you can **omit "to" in tables / figures** or **in parentheses**:

"Men were older (40-50)." Or in a table, "Men, 21-65."

I can live with "Patients enrolled in 2000-2010 were older," but only with "in."

22. Gustavii says that **for numbers under 25**, offer **no percentage at all**
at **25 to 100**, **no decimal** (**7%**)
at **100 to 100 000**, **one decimal place** (**7.2%**).
Above that, two places (**7.21%**).

Hall (1998) feels that **for numbers under 100, no percentages are relevant.**

23. **For numerals or words and their units of measure**, hyphenate: "a 6-ml sample" or "six-part sessions." A confusing "4 4-mg doses" is clarified as "four 4-mg doses."

Use a singular verb for a quantity considered one unit: "3 ml was best."

24. **Avoid French lines** (–) for items in a list or to indicate speech; non-Finns may be confused. In lists, use numbers (1, 2, 3), letters (A, B, C), or black balls—"**bullets**" (•).

Quoted oral or written words in English take quotation marks: "Help!" or 'Help!'

25. **Suppliers of materials:** Use the manufacturer's **name and address at first mention**, **then only the name**. **Include company, city + country, or city + state / province + country**.

Examples: "(Smart System Oy, Turku, Finland)," then only "(Smart System)."

"(Sigma Chemicals, Inc., St. Louis, MO, USA)," then only "(Sigma)."
↑
But **omit "**USA**"** in articles **for US journals**.

26. **Now banned as unclear**: "Pain and/or fatigue." Write "Pain or fatigue or both."

27. **Strongly discouraged**: "respectively." Now avoid "Levels in the heart, brain, and liver were 11, 21, and 28%, respectively" or " . . . were a respective 11%, 21%, and 28%."

Instead, write a version two words longer but far easier to read.

Here, the **number of required words per item decreases**—from five to four to three.

"The level in the heart was 11%, in the brain, 21%, and the liver, 28%**.**"

But if you must use several sets of the same pattern "A, B, and C were 1, 2, and 3," use "respective / respectively" only once—for the first set. Readers grasp the pattern!

28. Remember: **italics for book and journal titles; quotation marks** are for titles of **shorter** works, meaning articles, chapters, sections, stories, plays, poems.

Italics also, **always**, for all **genera and species**: *Helicobacter pylorus.*

29. **Italics are,** however**, expensive and difficult to use consistently.** If you **use any**, you must **use them for all Latin terms and all foreign words:** *i.e. / e.g. / et al. / in vivo / laissez-faire* (see page 42). Check whether your target-journal uses italics.

30. **Latin abbreviations:** Finns, I notice, use **i.e.** (*id est*; that is; Finnish *eli*) well:

"Our leader, i.e., the director of the study, arrived early."

Finns greatly overuse e.g. (*exempli gratia*; for example / for instance; Finnish *esim*),

It is correct only for an example following the name of the group it belongs to.

"Large countries, e.g., France and Germany—"

Commas normally go before and after e.g. and i.e., just as in "X**,** for example**,** won**."**

Never, therefore, begin a sentence with "e.g." ("~~E.g., malaria was common~~").

Nor begin a citation with "e.g." ("~~e.g., Smith 2005~~").

Substitute "for example / for instance / such as." Or

create an OPEN SERIES: "Symptoms of concussion (headache, nausea) may occur,"
The absence of "and" or "or" indicates that these do not represent 100% of the list.

31. **Etcetera / etc. (jne.)** is too informal for articles or theses. End with "among others"?

32. **Avoid sexism**. Instead of "Everyone took his dose" (or the ungrammatical "Everyone took their dose") or "took his / her dose," try the plural: "All took their doses."

Avoid the genitive entirely? "Everyone took the required dose." "Each took the dose."

Rather than "found in Man / man," write "found in human beings."

"**Female"** is **acceptable as an adjective. Avoid it as a noun**. "Female patients" is fine, but if over age 17, "females" are "women." The same goes for **males vs, male subjects**. And if more than human genitals or hormone status is relevant, use "**gender," not "sex**."

33. **Avoid long noun clusters as pre-modifiers**.

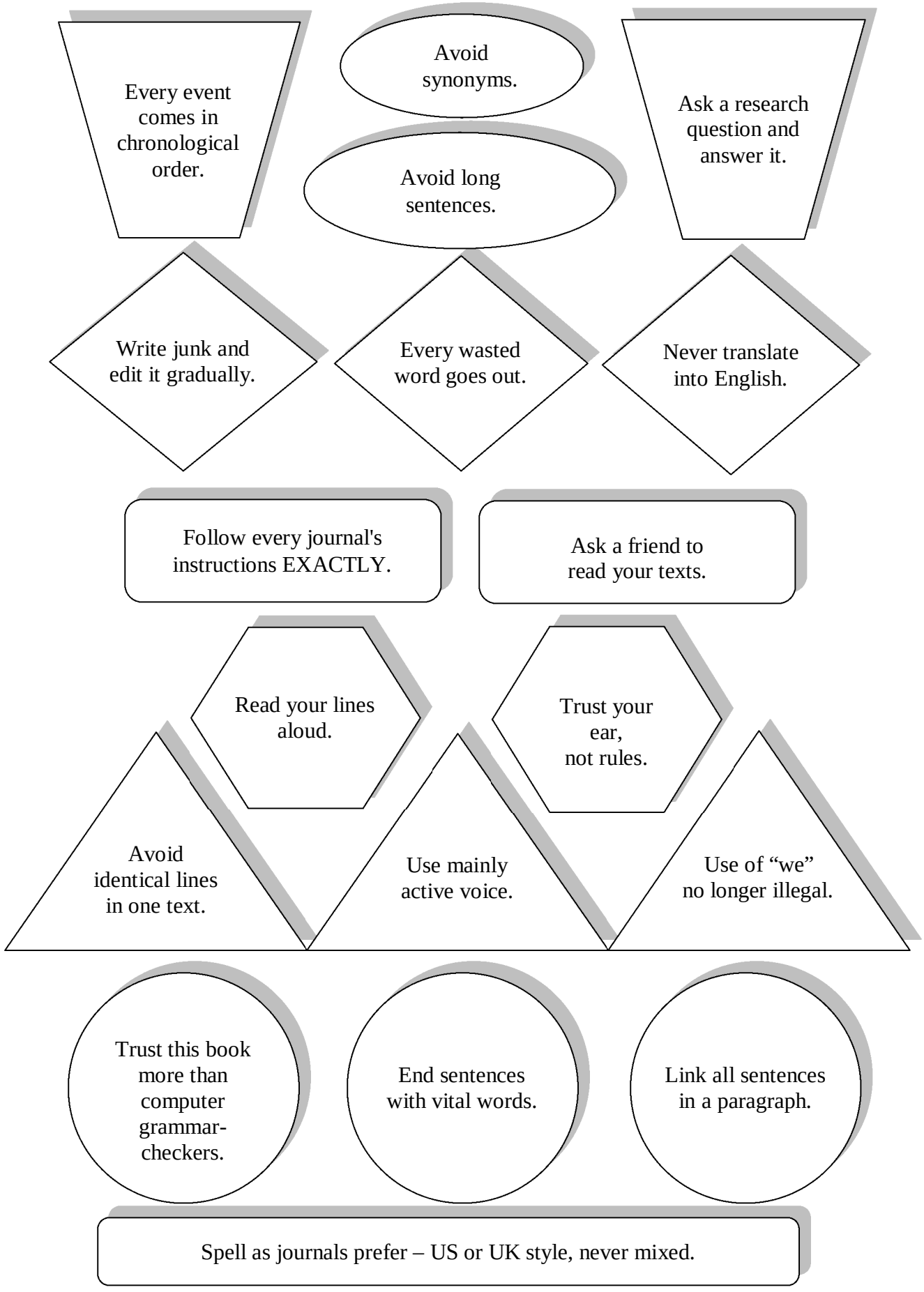
The American Thoracic Society Publications says that because "the goal is clarity, not brevity," instead of "cultured sheep pulmonary artery endothelial cells," write "cultures of endothelial cells from the pulmonary artery of sheep."

34. Comparisons with "times than / times as":
Assuming that patients' recovery-time was 6 days; then notice what you are saying:

A. "Controls took three times longer to recover" = Controls took **24** days.
(Patients' recovery time is the bottom book. You added 3 **times** that value.)

B. "Controls took three times as long to recover." = Controls took **18** days. **Use, with "**times**," always "**. . . as**."**

Take-home messages



Sample Professional Cover Letter

- **Be careful**. **Avoid begging, boasting, or pressuring the editor**.
- **Keep cover letters brief and cool,** because journals need manuscripts.
- **On-line submission may, however, require no cover letter**.

"Dear Dr. Shaw," NOT "Dear Dr. ~~James~~ Shaw."

(We like our names, but **give only family name**, *sukunimi*, here, unless gender is unclear (Kim, Lee). **No** "Ms ~~Jane~~ Shaw."(If unsure of degree, use "**Dr.**")

"Thank ~~You~~ for ~~Your~~ kind aid**" should be "**Thank you for your kind aid**."**
Never capitalize "**you / your"** unless you write to God!

"Please find enclosed a manuscript entitled "X in Y," reporting my / our / research into Y, for consideration by your journal. Its findings indicate that A may be a cause of B."

(Your **title** goes in **quotation marks; a journal title deserves honor = italics**.)

The words "publish" or "for publication in" seem to me **too intimate and too obvious**. The editor can certainly guess what you are seeking!

"The material presented is based on the original research of the author[s] and is not being offered for publication elsewhere. This is the third of five articles based on the same series and methods; I enclose copies of the others, one already published, one in manuscript.

"Correspondence regarding this article should be directed to NN. [Perhaps adding] We / I look forward to your reply / We look forward to your / We await your response."


("**We are waiting for** . . . ." is **rude,** and **Never confuse** "wait" **with** "expect"!)

Always add the journal's own **disclaimers,** lines in lawyers' precise language, usually found in the journal's "Instructions to Authors." Copy them exactly. Some may be:

"**All authors contributed substantially** to this work."

"This manuscript is **not submitted elsewhere**."

"**It duplicates no portions of other texts by the author(s)**." (If it does, be sure to enclose reprints or manuscripts of those texts.)

"**No financial support** was received from anyone benefiting from these results." **(**Meaning **no conflict of interest**).

"This project **followed accepted humane and ethical practices**." (Which ones, from which declaration?)

Journals also usually advise that you list all financial sources on the title page.

Enclose manuscript **copies of all unpublished sources** that you cite and

permission letters for material you borrow to reprint, such as figures or tables.

Describe any revision / author-editing by a **native English-speaker**, in **order to neutralize any prejudice against your English that can be inspired by your foreign name and address.**

News flash:

Some important **journals** like the *BMJ* now **require the author of a submitted article to reveal whether this article has already been rejected by another journal**. The recipient editor may demand to read the comments made by the reviewers / referees of the rejecting journal(s), and also to read the responses of the author(s).

This requirement may discourage many from submitting to these major journals or may make them submit their work **first** to the **most prestigious journal** that would conceivably accept it.

This rule aids the journal by saving its time and funds. But this rule means that you may fail, upon a second or third submission, to hide the fact that your manuscript has already been rejected.

Warning: Never risk disobeying this rule!

Therefore, **submit initially to the highest-quality journal** possible.

One student, when faced with this rule, created an excellent statement to the editor who next received his manuscript—at the *BMJ*:

"The work was originally offered to the *NEJM*. After respectful and positive comments from two external reviewers, this work was rejected due to editorial policies, however. We have attached to this submission the letter from that editor and the reviewers' comments, have revised our manuscript significantly now, and we sincerely hope that you appreciate the value of this study."

(If you adapt this, beware of sending it to the *BMJ*!)

Second-Submission Cover Letter after Review

Sample lines useful for the body of this letter (see also the Handling Reviewers section):

Thank you for considering / taking into consideration our paper / article, entitled "X in Y."

The reviewers' / referees' suggestions will much improve our text / article / presentation.

We have made [Add: "to the best of our ability"?] all of the revisions suggested, and these are explained point by point in / on the following pages / in the accompanying file.

You can also compliment the reviewers / referees by calling them "helpful / wise / thorough," But never direct your comments to the reviewers; your response goes to the editor's desk.

If a reviewer criticizes your English, you must seek native-speaker language aid (again?!).

Repeat what you said in any author-edited first submission, writing something like this:

> This version has been revised by a native English speaker . . . .
> (Give the name? Add, if true, ". . . trained / experienced in the field of [say what]."")

As well as revision of the re-submitted manuscript, have an expert revise your crucial—and very respectful—responses to the referees.

End the letter with something like "We hope that you will find this version more acceptable."

Layout and Lines for Formal Letters on Paper

On stationery with a pre-printed letterhead (*logopaperi*), as at top center in the design below, center the date just below the letterhead.

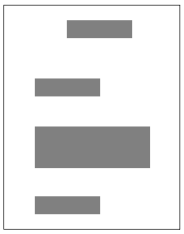
Otherwise, type your own 2- to 3-line address in the upper right corner, then the date below it. Your address may even sit at the left margin, if every line of the letter begins at the left.

Phone and fax numbers and email address go below your name at the bottom, not at the top.

The **recipient's address is a list at the left margin**, with locations stacked as shown here:

Professor Joan White, Editor
The Journal of Applied Cleverness
Department of Brains
University of South Cerebrum
1600 Pons Lane
Bedford, XY3 LM7, UK

Dr. Mark Phoey, Director
Department of Biogenetics
Super Genes Company
1616 23rd Street N. E.
Oleander, Florida, 26731
USA



More lines to borrow

Because I am interested in participating in the X Conference held 12 to 15 August in Vienna, I am requesting an application form and data concerning submitting an abstract for a poster / talk. Please send the relevant information at ~~Your~~ your earliest convenience [Never "Send it soon"] to the address above / below.

I would like to apply for a position at the X laboratory. (This means **a job**.)

Would it be possible for me to obtain a sample of Y / advice on Z / information on accommodation(s)?

"Accommodation(s)"—2 c's + 2 m's, means a **place to stay**. "Room & board" means bed & food.

I am planning to visit Rome this summer. Because my current research project is in many respects similar to ~~Yours~~ yours, I would find it extremely rewarding to visit your institute to consult with ~~You~~ you.

As underlined above, **compare yourself (up) to experts—never experts (down) to you:**

"~~Aho's 2007 findings agree with ours~~." "Our findings agree with those of Aho (2007)."

Excuse my late submission of this abstract; I have been ill.

Belatedly [= I am late], I send payment for X / send reimbursement [pay-back] of your expenses.

I trust that the check enclosed / amount enclosed is sufficient / funds are proper.

(We avoid saying or writing "MONEY." Alternatives: "funding / support / expense(s) / grant.")

Please accept our sincere regrets for our inability to attend X / do X.

We send our heartfelt sympathy for your loss / our hearts go out to you (death).

Thank you for your time / effort / concern / interest / support / aid.

Thanking you in advance (for your kindness in doing / sending X).

Never call yourself "kindly," as in "I kindly send you—" Compliment the other person.

"Will you kindly aid us?" "Dr. Stephens kindly provided the cells."

Sincerely yours, / Sincerely, / Yours, / With best regards. (Only **first word capitalized**.)

Repeat nothing here that is in the letterhead (*logopaperi*). Below this complimentary close go

your signature(s)
your typed name, title, department, workplace and address
phone, fax, email address

Email Suggestions

Choose a **subject line** that **clear**ly informs the recipient of the **topic.** Vast numbers of emails are—in self-defense—deleted unread. Yours is not spam, so make sure your message is identifiable.

Reading **long sentences** on screen is almost as **difficult** as understanding long sentences in an oral presentation. **Keep sentences short--and simpler than in a letter** on paper.

Use **active voice**.

Email is less formal than posted letters, Though I often omit a greeting, Kate Kellaway of *The Observer* in England has recommended this practice. British people are polite. A compromise—in Finland—may be just a simple "Hi!" But for editors, "Dear Dr. Brown, ..."

Unless your email is going to a total stranger or to someone you greatly respect, use a style close to that of first-draft writing, meaning **almost spoken English**. Kellaway describes email as

"**Like writing on water**," **email style is halfway between written and telephone language**

Elegant phrases ("I await your answer," "at your earliest convenience," "pardon my belated submission") **seem inappropriate in email**. **Contractions** ("I'll, don't, couldn't") **seem fine**.

As to **font**, **avoid showing emphasis by CAPITAL LETTERS**. This looks like SHOUTING.

using all lower case, however, fails to show how humble you are or i am!

Reserve **pictograms** like ;-) **for close friends**. End with a brief closing such as "Regards," your name, and contact data.

Re-read your message carefully before sending it. If you are angry or upset, **cool down** before striking the "Send" key.

Double-check before you copy or forward anything. Some copying and forwarding requires permission.

Beware! Email can go to the wrong person. Criticism of a boss may go to your boss.
Some employers monitor email.

Avoid writing in email anything you would not write on a picture postcard, because email is equally public communication.

As to faxing, much email advice **also** applies**:**

Probably omit any greeting, stay informal, choose active voice.
Provide **fax-contact information**. Give your fax number, which may be missing from the top edges of the pages —or may be illegible.
In addition, **on the cover page** put the **date, including year**, the **recipient's fax** number, and the **number of pages sent.** (Say whether this includes the cover page.)

Handling Reviewers / Referees and Editors

Before its submission, **three people should read your manuscript (ms): one naive person** who does not know your field, **one who is your scientific equal** (**peer**), and **one expert. All co-authors** should examine the ms carefully and sign the cover letter and disclaimers. **Never rush to submit**.

Your manuscript **surely will come back with criticism** from reviewers / referees and editors. **Almost never is any manuscript accepted without changes**.

Resist any rage or despair; have faith and say to yourself: "**We are all on the same team**."

In 99% of all cases, everyone working at / with the journal is only trying to improve your manuscript.

> **The most valuable thing you can receive is fair and honest criticism. Invite such criticism, welcome it, utilize it**. Karl Popper, philosopher of science

If you receive a **rejection** and submit elsewhere, **follow the next target journal's instructions** equally carefully. As Hall solemnly states: "It is **a grave** [as in burying yourself alive] **mistake to submit a paper in the style of another journal**; this suggests that it has been rejected recently."

Rarely will reviewers ask you to cite their own or the journal's articles just to enhance their reputations or raise that journal's impact factor. Even more **rarely** will a reviewer **hold an ms.** for an extraordinarily long time, or—horrible to contemplate—will **steal data** from it.

All authors experience shock and shame over criticism. Non-native English-speakers must also **struggle with referees' language**. Often even native English-speaker referees / reviewers make grammar ("between you and I") and spelling errors ("Febuary," "libary"). Your **overburdened, unpaid** reviewer may be writing the report at three o'clock in the morning after a day of surgery.

Reply directly to the editor and quote each criticism in full or almost completely.
Don't expect an editor to search through papers or net files for reviewers' comments in order to understand your responses to each comment.

Never attack a reviewer! Take all **blame** upon **yourself. Always be polite** to the editor and polite regarding your reviewers. (On the same team, remember?) **Use correct, formal** English.

Obey, or fully explain why you cannot:

"Procedure X is not an option / not according to general policy, here."
"I must have been unclear: Because we used no X, we can provide no photo of X."

If two reviewers disagree, politely explain why you prefer one opinion to the other. Explain why a reviewer's request is unclear to you.

The editor may then send your manuscript to an **extra reviewer**. Uninformed, prejudiced, or careless reviewers may receive no more mss. to review.

Sample phrases for you: "As advised / suggested / pointed out, I have reworded / added / deleted / corrected X." "Altered lines are underlined / italicized in the text itself."

A common journal instruction is to write fully, in your responses, all added lines.

And also highlight these new lines in the text. And make them match identically.

Again, I stress: A native English-speaker should also edit, if possible, **each revised manuscript** and **also replies to reviewers and editorial correspondence such as cover letters.**

Only in extreme cases of **reviewer error** would one dare say,
"Perhaps this is not his special subject."

Famous authors can argue; **young authors must be cautious**.

Perhaps your **choice of journal was unwise?**

If the silence is very long, write a brief note asking whether the manuscript arrived. If the editor confirms its receipt, be very careful. Wait six months? Ask your professor for advice, or someone who is in contact with the editor?

From the European Association of Science Editors (EASE) on-line Forum, here are problems and advice from the expert journal editors and reviewers.

- In a few cover letters that one journal received, the author of the letter had mistakenly used the wrong journal name, substituting the name of the target-journal's rival journal! (Helle Goldman)

- "Take advantage of the review to undertake revisions [for the next target journal] as seriously as . . . when re-submitting to the same journal." (Mary Ellen Kerans)

- "I sometimes found it difficult to find reviewers for certain papers [in a narrow field]. But is the only answer then to have the same reviewer constantly turning a manuscript down?" (Elise Langdon)

- ". . . a referee may not have recommended rejection, and might like to see whether the paper has indeed been revised in the light of comments received." (Will Hughes)

- "Of course a referee who sees the same paper coming through a different journal should make clear that it has been seen before, and of course editors should ensure that there should be a fresh referee, too." (Will Hughes)

Pay close attention if a journal offers to let you suggest referees or to request that a certain person not be a referee. (Try to explain why the person is inappropriate.)

Journals tend to respect a request to avoid a certain person. Among suggested referees, they tend to use at least one. For anyone you suggest, provide full contact information.

Permissions and notification

Before you reprint—exactly or as an adapted / modified table or a figure, or a major portion of one—in your own publication, you must request and receive the **publisher's permission**. You must **print in your article or thesis, below the borrowed material, the exact line that the publisher supplies**, such as "Used with the permission of Journal X." (**See the thesis section for more.)**

Cutting very thin the data from one project to produce a maximum number of articles is called **redundant, prior, or fragmented publication**. This "**salami publishing**" means that articles resemble very thinly—too thinly—sliced meat cut from a large chunk. Students and even professor-candidates may **salami publish** to earn degrees or to pad (fatten) their c.v's.

To avoid this, one author sent the editor **a list** of all published articles presenting data from her group's single large project. This showed that her own paper was fresh—had minimal overlap.

Journals usually now require that each article submitted be accompanied by **reprints or the manuscripts of** any of your other **articles that overlap** with that one, especially texts with data based on **material, methodology, or controls identical to** those of **your current submission**.

The journal ***Radiology*** defines **redundant publication** as one or more authors in common for a work which also has populations, methods, and results the same or similar. A report is redundant if already published **in another language;** ask permission for its publication in English.

Possible redundancy requires "**an accompanying letter informing the editor of any potential overlap** with other already published material or material being otherwise evaluated for publication . . . also . . . [stating] **how the manuscript . . . differs substantially** from this other material. The provision of copies of such material is required." (Emphasis mine.)

The ***British Journal of Surgery*** net instructions explain: "Please submit with your manuscript **copies of any other papers** (**including abstracts**)—**published, in press, or submitted** to consideration elsewhere—that **relate in whole or in part to the same data set**; this is essential to allow [our] assessment of any potential overlap." (Emphasis mine.)

Every journal wants fresh, unique data only. Receiving redundant (repeated) data, some journals threaten not only to **reject the manuscript** but also to **inform your institution**. If you fool the journal into printing your redundant data, the editor may **announce your sin** in their next issue and **refuse to consider future articles** of yours or even of your group or institute. This **blacklisting is serious censure.** Ensure, therefore, that **each manuscript** is **fresh and worthwhile on its own.**

Another crime usually leading to blacklisting is **multiple submission—submitting the same article to more than one publication simultaneously**. Because much effort and cost go into reading and assessing an article, no author can survive withdrawal of a submitted or accepted text.

Cancer Cell **:** "**If excerpts from other copyrighted works are included in your manuscript**, you must **obtain written permission** from the copyright owners and **credit the sources in the article**. . . . . If you have adapted a figure from a published figure, please check with the copyright owners to see if permission is required and include a complete citation/reference for the original article**. Obtaining permissions can take up to several weeks** . . . **lack of appropriate permissions can delay publication**." (Emphasis mine.)

Plagiarism

Customs vary, but in Anglo-American cultures, **using other scholars' exact published lines—even with citations but with no quotation marks—is stealing. It is plagiarism.**

The style of a text must not bounce back and forth between the author's writing level and splendid "Oxbridge" language. That screams "plagiarism."

Although we all describe the views and findings of others, **merely citing the source** "(Smith 1995)," **gives you no right to present** Smith's lines as if they were your own creation. The original author struggled to create those lines and must not meet them in your pages, masquerading as yours. To quote a few lines (in " ") is, however, sophisticated practice and a compliment to the author.

You no longer own published lines that you yourself have written, if the publisher holds the copyright. Editors thus generally consider self-plagiarism as illegal—abusing copyright law.

As **Stuart Handysides, MD and EASE board member**, said in the EASE Forum: "Elsewhere [than in Methods] simple cutting and pasting from earlier work might suggest that the **writers have stopped thinking about their subject, as the new data should be the prime focus** of the discussion and change the context at least somewhat. If not, what was the work for?"

The most frequent plagiarizers are writers without English as a native tongue. Paraphrasing is—unfortunately—difficult even for native speakers.

Beware plagiarism—including self-plagiarism—in a thesis summary; e-theses travel worldwide. The medical faculty now forbids use of your own lines, tables, or figures there.

- **Place quotation marks around all borrowed phrases or lines (quote).**
- **Close the book and put the facts into your own words (paraphrase).**
- **Give source and write "says / states / reports," then quote a bit without " ." This might, for instance, be a vital, difficult definition of some object or process.**

This anonymous news item is adapted slightly from *Nature,* number 422, 13 March, 2003.

> **Emphysema is a lung disease that is predicted to become one of the top five causes of death and disability worldwide by 2020. Cigarette smoking is the greatest risk factor for this disease. Despite this correlation, however, only about 15 to 20% of cigarette smokers develop emphysema. The fact that these susceptible individuals are generally clustered into families hints that there may be certain genes that predispose people to smoking-induced emphysema.**
>
> **Unlike asthma, in which the flow of air through the lungs is temporarily obstructed, emphysema is characterized by a progressive airflow restriction that results from permanent enlargement of the lungs' peripheral air spaces and loss of lung elasticity.**

Exercise on Plagiarism Hunting

I have attributed this anonymous news story to an author with the invented name "Thoraksman."

These five passages make use of the *Nature* news item on page 72. Where is plagiarism, and where are the data presented well? Fix the illegal passages so they will be legal.

1. Our patient was diagnosed with emphysema, a progressive airflow restriction that may result from permanent enlargement of the lungs' peripheral air spaces and loss of lung elasticity (Thoraksman 2003).

2. Thoraksman in 2003 considered rather low the 15 to 20% incidence rate for emphysema among cigarette smokers. He warns, however, that emphysema may, by 2020, become a major worldwide cause of disability and death.

3. The figure of "15-20%" for the incidence of emphysema among "cigarette smokers" seems low to Thoraksman (2003), who continues: "there may be certain genes [perhaps the X gene?] that predispose people to smoking-induced emphysema" (Thoraksman 2003).

4. Concerning cigarette smokers with emphysema, the fact that these susceptible individuals are generally clustered into families hints that there may be certain genes that predispose people to smoking-induced emphysema (Thoraksman 2003).

5. Although pulmonary emphysema, as we read in *Nature*, may "become one of the top five causes of death and disability worldwide by 2020" (Thoraksman 2003), not everyone believes that heavy cigarette smoking offers any serious risk for emphysema.

If **professors, directors, or language revisers aid you** in writing up your work and **agree to your submitting their lines under your own name**, this seems ethical. Lines they write with or for you have are unpublished. Someone's writing your entire paper is unethical **ghostwriting**.

Plagiarism can no longer escape detection. At many net sites, any reviewer or editor can check whether your words are actually your own. These sites can search billions of documents in minutes, underlining matching passages. Some editors now check all submissions for plagiarism.

Medics are not alone in their sins. The Institute of Electrical and Electronics Engineers says that plagiarism in its journals soared from 14 cases in 2004 to 26 in 2005, and in 2006 to 47—annually doubling. The IEEE thus began running a tutorial for author education and crime prevention!

Impact Factors

In The European Association of Science Editors (EASE) *Science Editors' Handbook* section "Journal impact factor," Jane Moody, in November 2005, discussed impact factors, developed by the Institute for Scientific Information (ISI) in the 1960s. "The impact factor of a journal is calculated by dividing the number of citations in a year by the articles (source items) published in that journal during the previous two years."

Some of the problems that Moody notes:

- Multiple authors all citing their own articles will affect the impact factor.
- Impact factor differences are not credible unless differences reach about 22%.
- Frequent citation may occur because of negative responses to an article, and criticism of it, because "it is simply quantity that is being measured, not quality."
- Review articles are often cited, so the more review articles a journal publishes, the higher its impact factor.
- The earlier in the year something is published, the longer the time to receive citations.

"Artificial manipulation of the impact factor can be unethical" according to the Committee on Publication Ethics (COPE), at www.publicationethics.org.uk , an organization established to provide aid concerning authors' and editors' ethics questions and problems.

> One editor arranged for that journal's own referees to "insert citations" of that journal's articles into submitted papers. Authors were afraid to refuse.
>
> The COPE declared that this "manipulation had been 'wicked practice' [an extremely strong term], and the editor was reprimanded [severely scolded]."

Björn Gustavii states that "the impact factor ranks journals; it does not evaluate individual papers."

He suggests looking at the 2006 Faculty of 1000 Medicine rating system at

http://www.f1000medicine.com

where 2500 top scientists have rated papers regardless of journal.

See also the 2002 site for biologists at http://wwwf2000biology.com.

Valuable Resources, in order of relevance

Gustavii Björn. 2008. *How to Write and Illustrate a Scientific Paper*. 2nd ed. Cambridge, New York: Cambridge University Press, CUP (By a physician/editor/teacher: clear, witty, especially excellent regarding tables and figures).
Watch for his next CUP book—on compilation theses

Goodman Neville and Edwards Martin, 1999. *Medical Writing: a Prescription for Clarity*. Cambridge: CUP. (Doctor-authors battle passive voice, pomposity, misuse of words)

Perttunen J. M. 2000. *The Words Between*. 4th ed. Helsinki: Medical Society Duodecim.
(For Finns in biology/medicine, much about Finnish) Out of print; seek it in a library.

O'Connor Maeve. 1999. *Writing Successfully in Science*. London: Chapman and Hall.
(Former *Bulletin* editor for the European Association of Science Editors)

Hall George M, ed. 1998. *How to Write a Paper*, 2nd ed. London: BMJ Books (by doctors)

Day Robert A and Gastel Barbara. 2006 *How to Write and Publish a Scientific Paper*. 6th ed. Cambridge, CUP. (Or any earlier Robert Day edition; thorough, famous, and humorous)

Huth Edward J. 1999. *Writing and Publishing in Medicine*. 3rd ed. London: Williams & Wilkins (Top US medical manual by ex-ed. *Annals of Int. Med*; likes Perttunen)

Merne Simo. 1989. *Handbook of Medical English Usage*. Oxford: Heinemann,
(A Finn's useful definitions of terms & distinctions)

Uniform Requirements for Manuscripts Submitted to Biomedical Journals (the Vancouver Document) is at <http://www.icmje.org/index.html

The Cobuild Dictionary (for learners), any edition (Large, cheap, essential for natives and non-natives, with idioms, verb + preposition pairs, US versus British usage. Explanations are simple; actual examples are numerous and authentic). Check for what is on the net and on CD-ROM.

Suomi/Englanti/Suomi Sanakirja, Ilkka Rekiaro and Douglas Robinson, Gummerus, Jyväskylä/Helsinki (Brit + US; modern, idiomatic)

*The Collins Thesaurus in A-Z Form***,** 1990, Collins, UK.

Useful addresses :

http://www.helsinki.fi/kksc/language.services/AcadWrit.pdf This book, updated twice annually

www.wsu.edu/~brians/errors English errors—vocabulary

www.ease.org.uk/esecont.htm Assoc. of European Science Editors (EASE) journal

www.wordiq.com/definition/American and British English differences
US-British styles—writing & pronunciation

Appendix I Find more than 70 problems here (many from Finnish interference).

1. **It is shown in this randomized double blind case control study, that intravenous X has no renal protective effects in patients operated for coronary heart disease.** **(**Find the vital "what." Move the "who," "when," and "where" that they precede the final "what.")

2. **35 females and 11 men of age over 90 years old were studied. It was shown by this study, that elderly can, despite of their old age, get improvements by participating a weight training program, etc.**

3. **Based on one criteria, informations indicate their equipments are the finest ones.**

4. **The aims include e.g.: 1) to control the patients for 1 year, 2) discovering non-compliance, 3) a search for ways to monitor patients compliance with doctors' orders.**

5. **In 1994, in a survey in X province it was reported that the prevalence of diabetes was 3 % in the 30-60 years old age group (See the Table 7.). The prevalence rose up to 6 % in the 30-60 population in 1997, as shown by the present study.**

6. **Eighty-seven per cent (131/150) of the patients, who had lymphoma diagnosed improved with this treatment after a period of sixteen weeks had past. The majority of them was male.**

7. **Also Aho's 2007 results are more impressive compared to Bix's findings (Bix 2001). Bix's results are different to / than our study.**

8. **Her income was 70.000 € at a tax-rate of 48,5 % a rate she wieved as far too high.**

9. **On other hand, these two series contain remarkably interesting phenomenon, but on other hand are like those of Smith, et al.'s whose so-called QRX series was published in 2009.**

10. **John Jones discusses about this data shortly in her third articles' result's chapter.**

11. **Other article soon will appear in the "Nature," It is now in print.**

12. **However, during the recession as much as every ninth nurse was remaining unemployed; studied hospital districts comprised of Helsinki, Lahti and Tampere.**

Appendix II Introduction exercise

First, glance through "Recipe for an Introduction."

I found an excellent Introduction from a good journal. I then rearranged its clauses to give you practice in recognizing good introduction organization. Consider this a rough draft that you might write, pouring your thoughts onto a page or a screen. Find in it the actual four Introduction moves. Can you improve end-focus slightly? Where would citations appear?

1. In the mechanism underlying the association between increased body weight

2. and OA, mechanical loading across joints is probably involved. However,

3. evidence is inconsistent from cross-sectional surveys for a link between

4. obesity and hand osteoarthritis (OA). In the longitudinal Tecumseh

5. Community Health Study, adult obesity associated with incident hand OA

6. in men and women ages 50-74 years was suggested. Therefore, the

7. relationship between birth weight, childhood growth, adult weight and hand

8. OA should be examined. Obesity is the strongest risk factor 8. for knee

9. osteoarthritis (OA), and the relationship is not known between OA and body

10. weight in early life. However, the force across hand joints is not necessarily

11. greater in persons who are overweight, and metabolic factors associated

12. with obesity have been implicated; some of these factors, e.g. impaired

13. glucose tolerance, are also linked to low weight at birth. Prospectively

14. collected data from a large population based birth cohort was used to

15. explore this issue in our study.

Adapted from "Weight from Birth to 53 Years: A Longitudinal Study of the Influence on Clinical Hand Osteoarthritis," A. Aihie Sayer, et al., *Arthritis & Rheumatism,* Vol. 48, No. 4, April 2003, p.1030.

Appendix III Editing exercise

An exercise from Gustavii, 2005 (adapted from Kelsing, 1958): Shrink these four sentences, taking 53 words, into one short sentence. Omit no vital information.

> Our research, designed to test the fatal effects of PGF**α** on dogs, was carried out by intravenously introducing the drug. In the experiments, a relatively small quantity, 30 mg, was administered to each animal. In each case, PGF**α** proved fatal. All 10 dogs expired before a lapse of 5 minutes after the injection.

Discuss these variants. Note end-focus. Which do you prefer and why?

1. For disease Z, X may become the treatment of choice, because X is well tested and causes few side-effects.

2. Drug X, because it is well tested and has few side-effects, may become the treatment of choice for disease Z.

3. For disease Z, drug X, well tested and with few side-effects, may become the treatment of choice.

Results presentation: This sort of Results paragraph seen too often. Is it immediately clear?

Present these data instead in a **grasp-at-one-glance flowchart** with all the data in boxes.

To study these Vantaa residents over age 85 in 1991, we recruited 601 individuals. Examinations were clinical and covered 92% of them, of whom 61% were non-demented. Before being examined, however, 36 died. Those refusing the examination numbered 11, and one could not be contacted.

The demented and non-demented became two groups. Of the 203 demented individuals who died by 2001, 60% had an autopsy. Of the non-demented 61%, one moved away. Of the other 337, 231 remained non-demented. The others showed incident dementia. Of the former, 211 died by 2001, and of the latter, 92. Autopsies for these groups numbered 99 (47%) and 60 (65%), respectively.

The overall total of autopsies for the 506 who died by 2001 was 281 (51%). The results shown by the autopsies were the following: cortical Lewy bodies in 42, severe amyloid pathology in 178, severe NFT pathology in 128, and both of the latter in 110.

Appendix IV Improve this Methods section by editing out passives. Lose 70+ words! Do you also have the skill to avoid using many—or any—"we" pronouns?

A retrospective review of all breast cancer patients treated for local recurrence in our hospital was performed. Cases with other cancers present or unknown primary were excluded. The information was gathered from the patient database of the Department of XXX, Turku University Central Hospital (TUCH), consisting of 5859 breast cancer patients. All the patient records in the database were reviewed, and those patients with local recurrence of breast cancer were selected to be included in this study. A total of 506 patients were found. They had been treated between 2005 and 2009 for local recurrence in the excision scar or for in-transit metastasis. Factors predicting outcome after local recurrence were analyzed. Patient records were analyzed for patient, tumor, and treatment characteristics. Details on tumor characteristics were obtained from pathology reports, and all pathology reports were re-examined by a specialist in pathology to obtain all information on the primary tumor. Surgical and radiological reports were analyzed for follow-up data on patterns and timing of local recurrence. Furthermore, possible development of lymph node or distant metastases was recorded. The ABCD staging system from 2003 was used for grouping patients according to their stage of the primary disease. **(14 passive verbs in 195 words)**

. **Appendix V** Proofreading exercise

This sample lacks any authenticity, so ignore the medical data. The grammar is almost acceptable.

Here, repair the extremely **common style errors** overlooked by most young Finnish authors.

This imaginary author has failed to **imitate the target-journal style**.

139 men and 125 females were in the study. The XYZ procedure was performed in 44.7% (118/264) cases. 1/3rd (90/264) of these cases were under 60-years-old, and 66% (174/264) were over the age of 60-years old and under 80 years in age. Their disease was considered acute in 62,5 % (165/264) and chronic in 31,4% (83/264). In statistical analysis, PLI was associated with poor prognosis (p=0.002). In addition, tumor stage (p<0.0001), prevalence of GHI (p < 0.0001), distant metastasis (P<.001), tumor size (*P*<0.0001), tumour site (*p* = 0.0001), patient age (P = 0.004) and noncurative operation (p < 0.0001) were associated with poor prognosis. Consensus between two oncologists, PKK and IMR, determined which patients were candidates for experimental drug LPE. LPE treatment was organized by the county hospital district where the ethical committee gave consent to the study procedures.

Appendix VI **T**able exercise

First, in the article in which this table would appear, in the **Results** section, suppose that readers meet these lines.

"Table 1 shows the responses found in mice in haemoglobin and in enzyme X after feeding them with the HSF diet and the LC diet and the respective figures for control mice on a normal diet."

Then, on the same article page, comes this **table**: Find errors throughout this terrible table, ranging from almost invisible to macro.

Table 1. The responses found before and after the feeding of mice with the HSF diet, the LC diet and a normal diet for 15 and 30 days.

Diet Group Type	Time of blood sample	Length of the diet	Numbers of studied mice	Male mice	Age	Hemoglobin	p values	**Enzyme X**	P-value
HSF diet	Before diet	15 days	18	11/18	2.0	8.6		0.41 µg	
LC diet	Before diet	15 days	18	12/18	1.9	8.5	NS	.37 µg	NS
Normal diet	Before diet	15 days	18	10/18	2.2	8.50		0.39 µg	
HSF diet	After diet	15 days	18	11/18	2.0	8.70		0.43 µg	
LC diet	After diet	15 days	18	12/18	1.9	8.9	NS	0.42 µg	NS
Normal diet	After diet	15 days	18	10/18	2.2	10.10		0.41 µg	
HSF diet	Before diet	30 days	18	9/18	1.5	8.3		0.41 µg	
LC diet	Before diet	30 days	18	10/18	2.1	8.50	NS	.38 µg	NS
Normal diet	Before diet	30 days	18	12/18	1.8	8.4		0.41 µg	
HSF diet	After diet	30 days	18	9/18	1.5	9.1		.44 µg	
LC diet	After diet	30 days	18	10/18	2.1	9.3	< 0.03	0.42 µg	NS
Normal diet	After diet	30 days	18	12/18	1.8	14.1		0.41 µg	

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