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Effective Writing

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Effective writing

Largely based on:

- <http://www.nature.com/scitable/topicpage/effective-writing-13815989>
- <https://cgi.duke.edu/web/sciwriting/index.php>

Effective writing

The goal of this course is to learn how to write **effectively**. It is not about correctness (grammar, punctuation, etc.), but about **communicating what you intend to the reader**.

The goal of writing is communication. These lessons do not put forth **absolute rules**. If the intent of the writer is communicated, the writing was effective, regardless of rules kept or broken.

Effective writing

I. Subjects and Actions

II. Cohesion, Coherence, and Emphasis

III. Concision and Simplicity

III. Concision and Simplicity

be simple without being simplistic,

use short sentences and simple words (avoid « erudite English »)

- do not use superfluous words, avoid terms with vague meaning and intricate sentences (this sentence is incomprehensible, therefore it must be a clever idea).
- even worse, incomprehensible sentences can convey false ideas (the contrary of what was expected).

III. Concision and Simplicity

Principles:

- Omit needless words (#1)
- Prefer simple words (#2)
- Use simple subjects (#3)
- Use adjectives/adverbs frugally (#4)

III. Concision and Simplicity

Principle 1: Omit needless words

Examine your writing and consider what each word adds; you may be surprised at how many are unnecessary.

- Phrases that add no meaning = *ineffectual phrases*

“The intent of those who use ineffectual phrases is to make it appear as though their sentences are more substantial than they actually are...(The Dimwit's Dictionary)”

III. Concision and Simplicity

Principle 1: Omit needless words

Examine your writing and consider what each word adds; you may be surprised at how many are unnecessary.

- Phrases that add no meaning = *ineffectual phrases*

<i>Examples:</i>	
Note that	Be advised that
It should be noted that	It is interesting to note
So-called	Needless to say
It is important to realize	

III. Concision and Simplicity

Principle 1: Omit needless words

- multi-word phrases that mean nothing more than a simple word = *wordy phrases*

<i>Instead of</i>	<i>Write</i>
The question as to whether	
whether or not	
There is no doubt but that	
In a careful manner	
This is a subject that	
A large majority of	
has the capacity to	
Are in agreement	

III. Concision and Simplicity

Principle 1: Omit needless words

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<i>Instead of</i>	<i>Write</i>
The question as to whether	whether
whether or not	whether
There is no doubt but that	doubtless
In a careful manner	carefully
This is a subject that	This subject
A large majority of	most
has the capacity to	can
Are in agreement	agree

III. Concision and Simplicity

Principle 1: Omit needless words

- multi-word phrases that mean nothing more than a simple word = *wordy phrases*

<i>Instead of</i>	<i>Write</i>
Prior to	
Subsequent to	
At this point in time	
Due to the fact that	
In the event that	
For the purpose of	
As a matter of fact	
In the near future	

III. Concision and Simplicity

Principle 1: Omit needless words

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<i>Instead of</i>	<i>Write</i>
Prior to	Before
Subsequent to	After
At this point in time	Now
Due to the fact that	Because
In the event that	If
For the purpose of	if
As a matter of fact	actually
In the near future	soon

III. Concision and Simplicity

Principle 1: Omit needless words

- multi-word phrases that mean nothing more than a simple word = *wordy phrases*

<i>Instead of</i>	<i>Write</i>
With the exception of	
In conjunction with	
In the absence of	
Is of the opinion that	
As regards	
With respect to	
With regard to	

III. Concision and Simplicity

Principle 1: Omit needless words

- multi-word phrases that mean nothing more than a simple word = *wordy phrases*

<i>Instead of</i>	<i>Write</i>
With the exception of	except
In conjunction with	and
In the absence of	without
Is of the opinion that	Thinks that
As regards	about
With respect to	about
With regard to	about

III. Concision and Simplicity

Principle 1: Omit needless words

Example:

As discussed, the second reaction is really the end result of a very large number of reactions. It is also worth emphasizing that the reactions do not represent a closed system, as r appears to be produced out of thin air. In reality, it is created from other chemical species within the cell, but we have chosen here not to model at such a fine level of detail. One detail not included here that may be worth considering is the reversible nature of the binding of RNAP to the promoter region. It is also worth noting that these two reactions form a simple linear chain, whereby the product of the first reaction is the reactant for the second.

III. Concision and Simplicity

Principle 1: Omit needless words

Example:

As discussed, the second reaction is really the **end result** of a **very large number** of reactions. **It is also worth emphasizing that** the reactions do not represent a closed system, as r appears to be produced out of thin air. In reality, it is created from other chemical species within the cell, but we have chosen **here** not to model at such a fine level of detail. One detail not included **here that may be worth considering** is the reversible nature of the binding of RNAP to the promoter region. **It is also worth noting that** these two reactions form a simple linear chain, whereby the product of the first reaction is the reactant for the second.

III. Concision and Simplicity

Principle 1: Omit needless words

Revision Technique:

Do a search for each of the phrases mentioned previously. If you find them, try removing or replacing them. See if it changes your meaning.

III. Concision and Simplicity

Principle 2: Prefer simple words

Never use a complex word when a simple word will do.

“Bad writers consider long words more impressive than short ones, and use words like *usage* instead of *use* or *methodologies* instead of *methods* without knowing what they mean. (John Lynch)”

Method: *A way of doing something.*

Methodology: *The system of methods followed in a particular discipline.*

III. Concision and Simplicity

Principle 2: Prefer simple words

<i>Instead of</i>	<i>Write</i>
usage	use
utilize	use
elucidate	show
methodology	method
etiology	cause

Revision Technique:

Search for these words and replace them if you can use a more simple word to convey your intended meaning.

III. Concision and Simplicity

Principle 3: Use simple subjects

Complex subjects = increased distance between subject and verb

Often, science writers want to accomplish too much in a single sentence:

- define a complex abstract entity (the subject),
- and then describe something that it does.

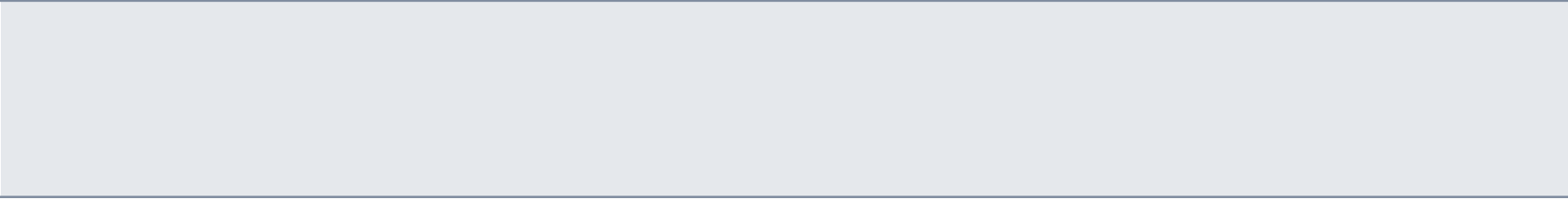
It is usually more clear to **split these tasks into multiple sentences**, some to define the subject and others to describe what it does.

III. Concision and Simplicity

Principle 3: Use simple subjects

Often complex subjects encapsulate actions in a modifying phrase:

The sequences that had passed our filtering, trimming, and alignment with ClustalX, were scanned for conserved elements across mammals.



III. Concision and Simplicity

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Often complex subjects encapsulate actions in a modifying phrase:



The sequences that had passed our filtering, trimming, and alignment with ClustalX, were scanned for conserved elements across mammals.



The sequences were trimmed, filtered, and aligned with ClustalX. **The resulting alignments** were scanned for conserved elements across mammals.

III. Concision and Simplicity

Principle 3: Use simple subjects

Revision Technique:

Find the subject and verb in each sentence. If they are too far apart, it may be because of a complex subject.

Try simplifying the subject in some way, possibly by dividing the sentence in two or eliminating unnecessary modifying clauses.

Consider using summarizing nominalizations to simplify the subject.

III. Concision and Simplicity

Principle 4: Use adjectives/adverbs frugally

In scientific writing, every experiment is "very innovative," every result "very interesting," and every conclusion "very important."

When "very" isn't enough, you'll find "extremely."

Often, these words can be omitted without effect.

III. Concision and Simplicity

Principle 4: Use adjectives/adverbs frugally

Example:

The simulation is run at very high-resolution.

The word "very" here is only meaningful if the sentence is making a distinction between *high-resolution* and *very-high-resolution*.

If you use "very" in a way that doesn't convey additional information to the reader, you're just wasting space.

III. Concision and Simplicity

Principle 4: Use adjectives/adverbs frugally

- The *repetition* problem:

Repeaters phrases are words commonly used together yet actually mean the same thing:

Example:

completely and utterly alone

An interesting and intriguing finding

An improved and modified protocol

These constructions have stylistic use in some forms of writing, but not in scientific writing.

III. Concision and Simplicity

Principle 4: Use adjectives/adverbs frugally

- The *repetition* problem:

Examples:

Close proximity

Added bonus

Exactly the same

Prior experience

A new invention/innovation

Revert back

Close scrutiny

Combine together

Surrounded on all sides

Exact replica

Future plans

Minute detail

III. Concision and Simplicity

Principle 4: Use adjectives/adverbs frugally

- **Excessive Hedging:**

It's good to be humble, but it's easy to go too far. Excessive hedging erodes the confidence of your results.

These results suggest that our method may possibly identify putative enhancer elements.

III. Concision and Simplicity

Principle 4: Use adjectives/adverbs frugally

- **Excessive Hedging:**

It's good to be humble, but it's easy to go too far. Excessive hedging erodes the confidence of your results.

These results **suggest** that our method **may possibly** identify **putative** enhancer elements.

The words *suggest*, *may*, *possibly*, and *putative* are all hedges.

III. Concision and Simplicity

Principle 4: Use adjectives/adverbs frugally

- **Demeaning adverbs**

Be careful of demeaning words like "obviously", "clearly", or "undoubtedly".

Something that is obvious to you may not be obvious to the reader.

- **Self-aggrandizement**

Be especially cautious of using words like "very" or "extremely" when lauding the merits of your study.

Here, we describe an exciting new groundbreaking method to...

Good science should speak for itself

III. Concision and Simplicity

Principle 4: Use adjectives/adverbs frugally

Revision Technique:

Highlight all adjectives and adverbs. For each, ask if it contributes a meaningful idea, or if it's fluff.

Do a specific search for commonly overused appendages like "very", "extremely", or "clearly", and remove them.

III. Concision and Simplicity

Examples:

These approaches use different kinds of methodology.



III. Concision and Simplicity

Examples:



These approaches use different kinds of methodology.



These approaches use different methods.

III. Concision and Simplicity

Examples:



To identify RNAs associated with each putative RBP, C-terminal tandem affinity purification (TAP)-tagged proteins, expressed under control of their native promoters, were affinity purified from whole-cell extracts of cultures grown to mid-log phase in rich medium.



III. Concision and Simplicity

Examples:



To identify RNAs associated with each putative RBP, **C-terminal tandem affinity purification (TAP)-tagged proteins, expressed under control of their native promoters**, were affinity purified from whole-cell extracts of cultures grown to mid-log phase in rich medium.



To identify RNAs associated with each RBP, we first tagged each RBP using C-terminal tandem affinity purification (TAP) tags, and expressed these proteins under control of their native promoters.

We then affinity purified these proteins from whole-cell extracts of cultures grown to mid-log phase in rich medium.

III. Concision and Simplicity

Examples:


We estimated that as much as 12-18% (depending on the tissue) of inter-species differences in gene expression levels

✗ might be explained, at least in part, by changes in DNA methylation patterns.



III. Concision and Simplicity

Examples:


We **estimated** that **as much as 12-18%** (**depending on the tissue**) of inter-species differences in gene expression levels  **might be** explained, **at least in part**, by changes in DNA methylation patterns.



Differences in DNA methylation could explain 12-18% of differences in gene expression.

III. Concision and Simplicity

Examples:

 Epigenetic events contribute to the etiology of diabetes; however, the lack of epigenomic analysis has limited the elucidation of the mechanistic basis for this link.



III. Concision and Simplicity

Examples:



Epigenetic events contribute to the etiology of diabetes; however, the lack of epigenomic analysis has limited the elucidation of the mechanistic basis for this link.



Epigenetic problems can cause diabetes, but how?


Some other examples



Dysregulation of physiologic microRNA, miR, activity has been shown to play an important role in tumor initiation and progression, including gliomagenesis. Therefore, molecular species that can regulate miR activity on their target RNAs without affecting the expression of relevant mature miRs may play equally relevant roles in cancer.



Some other examples

 **Dysregulation of physiologic** microRNA (miR) activity **has been shown** to play an important role in tumor **initiation** and **progression**, including gliomagenesis. Therefore, **molecular species** that can regulate miR activity on their target RNAs without affecting the **expression** of relevant mature miRs may play equally relevant roles in cancer.



Changes in microRNA expression play a role in cancer, including glioma. Therefore, events that disrupt microRNAs from binding to their target RNAs may also promote cancer.

Some other examples

Examples:



It should be emphasized that these proportions generally are not the result of significant increases in moderate and severe injuries, but in many instances reflect mildly injured persons not being seen at a hospital.



Some other examples

Examples:



It should be emphasized that these proportions generally are not the result of significant increases in moderate and severe injuries, but in many instances reflect mildly injured persons not being seen at a hospital.



Shifting proportions in injury severity may reflect stricter hospital admission criteria rather than true increases in moderate and severe injuries.

Revising your manuscript in 7 steps:

[<https://cgi.duke.edu/web/sciwriting/index.php?action=qt-7steps>]

1. Underline all nominalizations. Take a closer look at these words to see if they should be changed to verbs.
1. For each sentence, ask "what is this sentence about?" Is that the subject of the sentence?
1. For each sentence, find the part of the sentence that links to the previous sentence. Is it at the beginning or the end of the sentence?
1. For each paragraph, summarize the main point of the paragraph. Make sure each sentence in the paragraph supports the main point. Check to see if the first sentence and the last sentence discuss the same topic.

Revising your manuscript in 7 steps:

5. Read aloud or use text-to-voice to read your paper. Listen for sentences that lose you.
5. Give your manuscript to an intelligent outside reader, and ask him where he gets lost.
6. Do a text search for words or phrases that add little (very, it should be noted, the fact, framework, mechanism, utilize, usage, methodology, methodologies...)

Homework

Presentations and articles will be available at <http://stockage.univ-brest.fr/~gula/SE/>

For next lecture (Oct. 22nd):

- Read: **HughesDeCuevas01.pdf**
 - *We will discuss it collectively*
- And keep on writing your article:
 - Draft the results and methods sections.
 - Start writing the introduction and conclusions

Article will be due Oct. 29th:

Reviews will be due Nov. 5th:



Most scents remain constant in their quality over orders of magnitude of concentration (12). Nevertheless, at high concentrations, quality tends to be negatively correlated with intensity, as was the case, for example, for the cinnamon oil used in this study. Hence, reliability of absolute scorings was achieved by calibrating the amount of perfume ingredients with initial ratings for intensity against a reference substance of known concentration. The final concentrations were in principal chosen in a way such that individual ratings showed variance among participants within the sliding scale between 0 and 10 (meaning that people could decide whether they liked a scent or not). This procedure seemed successful for most scents; however, the concentrations for bergamot (highest average ratings) and vetiver (lowest average rating) could probably been reduced even more, as both scents did not show any discriminating power at the level of common alleles (people agreed largely on the quality of these two scents) (see Table 2). Interestingly, the pooled rare alleles showed discriminating power for...

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What is it that the authors were trying to say?

- **Were the perfume concentrations in the experiment appropriate?**
 - 1. If concentration is too high, the smell is too strong and affect ratings
 - *No problem because intensity is standardized*
 - 2. Concentrations are appropriate if they produce enough variability
 - *True for most cases with 2 exceptions*

Perfume intensity and quality are negatively correlated at high concentrations: If the scent is too strong, people will rate it unfavorably. Hence, we chose the final concentrations of each perfume ingredient so that it had similar intensity to a reference scent. The resulting concentrations appeared appropriate for most scents, as participants' preferences varied along the sliding scale between 0 and 10. However, participants largely agreed on bergamot (highest average ratings) and vetiver (lowest average ratings), so lower or higher concentrations may have been needed for these scents.