

Storm Damage Case Study / Editing

“I’m a client from the Forestry Department. After the storm last June, we collected data on over 3000 trees in Minneapolis, with the goal of identifying factors that led to root failure. Would you help me analyze the data? Thanks.” *FYI: This study made the newspaper; the article is posted outside my office.*

We’ll explore the data from this study on Wednesday. Take good notes so you’ll be ready. If you’d like, bring your laptop, I’ll have the data publicly accessible.

What questions would you ask the client?

Editing

Length and complexity alone don't make a sentence difficult to understand: some long sentences are perfectly understandable, and specialized terms may be necessary to explain complex problems. However, scientific writers sometimes needlessly inflate their writing in length and complexity in an effort to "sound scientific" or convey intelligence. In truth, it takes a deeper understanding to explain a complex topic simply and succinctly. It was best put by Shakespeare: "Brevity is the soul of wit." The best scientists can communicate complicated results to intelligent readers outside their field. Long, complex writing doesn't imply good science.

Our classes on writing are taken from the online Scientific Writing Resource at Duke University (<http://cgi.duke.edu/web/sciwriting/>). They credit George Gopen, Judith Swan, and Joseph Williams for many of the ideas.

Prefer simpler words. Omit needless ones.

Ineffectual phrases If you start to pay attention, you may be amazed at how often you read the words "it should be noted that." Think carefully about what they mean: nothing. See if you can find and cross out the ineffectual phrases in the following sentences.

- Note that in this situation, the difference is not meaningful.
- It is important to realize that this proof applies in other situations as well.
- This so-called difference is unimportant.
- It should be noted that the subject was on time.
- We tested for differences in order to ensure the groups were similar.
- The question as to whether the difference is meaningful is an important one.

Wordy phrases Can you find a phrase in each of these sentences that can be replaced by a single word?

- This occurred in a large majority of subjects.
- The two tests are in agreement.
- This test has the capacity to distinguish the difference.
- The experiment failed due to the fact that subjects were unavailable.

Complex words

Use a complex word only when a simple one won't do.

- The methodologies that were utilized in this study included *t*-tests and regression.

Use simple subjects (a review, in part)

Scientific writing abounds with complex subjects. The biggest problem this creates is that *the subject is not close to the 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. Instead, it is usually more clear to split these tasks into multiple sentences, some to define the subject and others to describe what it does.

Often complex subjects encapsulate actions in a modifying phrase. Here's an example. Can you underline the subject?

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

The sheer length of the subject costs the reader energy while waiting for the verb. This underlined subject also includes several *actions that aren't verbs* in the sentence. To convey these actions in verbs, we can divide this sentence into two; this also enables us to use an appropriate nominalization to summarize the actions of the first sentence, creating a simple subject (alignment) that *links backwards*. This opens the way for the complex subject (now turned simple) to perform additional actions in an understandable way:

Here's a revision. Underline the subjects now. Which is clearer?

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

Use adjectives/adverbs frugally

The repetition problem. Don't use two words when one suffices.

- “interesting and intriguing” finding.
- an “improved and modified” protocol
- or a “new and novel” drug.
- the “new invention”

Excessive hedging. It's good to be humble, but it's easy to go too far. A single hedge should satisfy your urge to cushion your claims. Excessive hedging erodes the confidence of your results. Find the hedges in this sentence.

- 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.

Demeaning adverbs. There is nothing more frustrating than reading a paper that alludes to something “obvious” that you are completely confused about.

- The relationship between X and Y can now clearly be seen.

Self-aggrandizement. Self-aggrandizement only reflects your methods negatively; good science should speak for itself.

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

With your group, read the following paragraphs and look for edits you might make.

Background and Goals

The recent storm in Minneapolis has offered a unique and special opportunity to study the factors that are associated with root failure of trees in the urban forest. This exciting study has the capacity to offer both scientific understanding about tree failure and guidance to city planners about how the costs of future storms could be alleviated. The primary goal of the study is to explore and understand the relationship between root failure and recent road and sidewalk work, as well as the width of the boulevard that the trees are planted on.

Study Design and Data

Researchers visited every block where two or more trees experienced root failure, and recorded measurements on every tree on those blocks. There were about 100 blocks, with an average of about 30 trees per block. For each tree, whether or not a root failure occurred, whether or not sidewalk or road work had occurred within five years, and the width of the boulevard were measured. The species of the tree and the DBH (diameter at breast height) were also recorded. It should be noted that a large majority of the trees with root damage had already been removed; the DBH for these trees was estimated from the stump size using standard formulas. Due to the fact that all of this data is from a single storm, it is obvious that results should not necessarily be extrapolated to future storms.

Homework 4, due Mon Feb 20:

Return to your Homework 2, where you wrote the first three sections of the collaboration plan, about the eagle wing flapping case study.

- Reread your work, looking for revisions and edits you might make. Mark them on your draft clearly. I expect you to find at *least* two, regardless of how good a writer you may be.
- In a pair or a trio, read a classmate's work for revisions and edits, and have them read yours. Mark your suggestions on their draft as well, and somehow make yours look different. (different color, star by them, etc.). These may be specific editing suggestions, or they may simply be places where you as a new reader weren't perfectly clear on what was being said.
- Reflect on the process by 1) reviewing the suggestions that your classmate made on yours and reflect on what you found compared with what they found. What did you learn about your writing from having another person read your draft? Also 2) reflect on their writing, and what aspects of what they did you thought were nice and that you can learn from. This could be about the form of the sections of the collaboration plan (ie, you liked something about how they presented the design of the study), or it could be a specific writing technique they used.

Staple your reflection to the version of your draft with the potential edits marked and turn in together.

Name: _____

Which editing principle do you think you struggle the most with?
How will you try to improve your writing?

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