# Writing exercise S12: Editing

## Dr. Morgan Feeney, AY 2024-25

### Editing Your Writing

Most, if not all, scientific documents undergo several significant revisions before publication – and even published documents are often less than perfect. Editing is an essential part of writing.

### Excerpts from Strunk & White: An Approach to Style [4th ed., pgs. 68-70 and 75]

**5. Revise and rewrite.** Revising is part of writing. Few writers are so expert that they can produce what they are after on the first try. Quite often you will discover, on examining the completed work, that there are serious flaws in the arrangement of the material, calling for transpositions. When this is the case, a word processor can save you time and labor as you rearrange the manuscript. You can select material on your screen and move it to a more appropriate spot, or, if you cannot find the right spot, you can move the material to the end of the manuscript until you decide whether to delete it. Some writers find that working with a printed copy of the manuscript helps them to visualize the process of change; others prefer to revise entirely on screen. Above all, do not be afraid to experiment with what you have written. Save both the original and the revised versions; you can always use the computer to restore the manuscript to its original condition, should that course seem best. Remember, it is no sign of weakness or defeat that your manuscript ends up in need of major surgery. This is a common occurrence in all writing, and among the best writers.

**7.** **Do not overstate.** When you overstate, readers will be instantly on guard, and everything that has preceded your overstatement as well as everything that follows it will be suspect in their minds because they have lost confidence in your judgment or your poise. Overstatement is one of the common faults. A single overstatement, wherever or however it occurs, diminishes the whole, and a single carefree superlative has the power to destroy, for readers, the object of your enthusiasm.

**8. Avoid the use of qualifiers.** Rather, very, little, pretty — these are the leeches that infest the pond of prose, sucking the blood of words. The constant use of the adjective little (except to indicate size) is particularly debilitating; we should all try to do a little better, we should all be very watchful of this rule, for it is a rather important one, and we are pretty sure to violate it now and then.

**16. Be clear.** … Clarity, clarity, clarity. When you become hopelessly mired in a sentence, it is best to start fresh; do not try to fight your way through against the terrible odds of syntax. Usually what is wrong is that the construction has become too involved at some point; the sentence needs to be broken apart and replaced by two or more shorter sentences. Muddiness is not merely a disturber of prose, it is also a destroyer of life, of hope: death on the highway caused by a badly worded road sign, heartbreak among lovers caused by a misplaced phrase in a well-intentioned letter, anguish of a traveler expecting to be met at a railroad station and not being met because of a slipshod telegram. Think of the tragedies that are rooted in ambiguity, and be clear! When you say something, make sure you have said it. The chances of your having said it are only fair.

**17. Do not inject opinion.** Unless there is a good reason for its being there, do not inject opinion into a piece of writing. We all have opinions about almost everything, and the temptation to toss them in is great. To air one's views gratuitously, however, is to imply that the demand for them is brisk, which may not be the case, and which, in any event, may not be relevant to the discussion. Opinions scattered indiscriminately about leave the mark of egotism on a work.

### Suggested editing Checklist:

1. Edit for meaning/clarity

* Are all statements correct and accurate? Is there any way a reader could misunderstand or misconstrue what you have written?
* Is everything the reader needs to know to understand your hypothesis/experiment/conclusion included? (Or, are there extraneous, distracting details that should be deleted?)

1. Check for technical errors

* Check formatting – italicize species names, get chemical formulae correct, etc.
* Check for any typos, misspellings, commonly confused words (e.g., there/their, its/it's, affect/effect)

### Exercise A.

Read each example and edit it to improve it. (Keep in mind all the principles we have discussed in previous exercises.)

**Sample 1** 1

The study evaluates the bioremediation potential of seven *Enterococcus faecium* strains and two *Bacillus subtillis* strains isolated from the effluents from the Southern Tunisian tannery (ESTT), which pose threats to public health and environmental integrity. The analysis primarily examines the phenotypic traits crucial to bioremediation, including biofilm formation, hydrophobicity, and exoenzyme activities, as well as characteristics naturally occurring in environmental bacteria related to heavy metal resistance, such as antibiotic resistances. Several strains were found to have high bioremediation potential and exhibit only antibiotic resistances commonly found in nature, ensuring their application for bioremediation remains uncompromised. The results of the exhaustive phenotypic analysis are contrasted with the whole genome sequences of the nine strains, underscoring the appropriateness of these bacterial strains for eco-friendly interventions in tannery wastewater treatment.

|  |
| --- |
| Suggested improvements? |

**Sample 2** 2

Halophilic *Halomonas* species have attracted significant attention from researchers in industrial biotechnology [1]. The unique ability to thrive in high concentrations of NaCl and alkaline pH environments enables Halomonas bacteria to facilitate contamination-free fermentation processes under unsterile conditions and support continuous production. The continuous production not only simplifies processes but also leads to substantial cost reductions for numerous commercial products [[2], [3], [4], [5], [6], [7], [8], [9], [10]]. *H. bluephagenesis* strain TD, a halophilic bacterium isolated from Aydingol Lake in Xinjiang Province, China, has emerged as a promising chassis for synthesizing various types of bioplastics polyhydroxyalkanoates (PHAs) [[4], [5], [6], [7], [11], [12]]. *H. bluephagenesis* TD thrives in NaCl concentrations ranging from 20 to 150 g/L, with an optimal range of 40–60 g/L. The strain exhibits growth potential within a pH range of 5.0–11.0, with optimal growth observed at pH levels between 8.5 and 9.0. Pilot-scale PHA production has been successfully conducted in a 5,000 L bioreactor vessel, operating under open unsterile conditions [8]. Furthermore, *H. bluephagenesis* TD has been successfully developed as an outstanding chassis for next-generation industrial biotechnology (NGIB), capable of producing multiple products [1,10,[13], [14], [15]]. These findings demonstrate that *H. bluephagenesis* TD serves as a valuable platform or chassis for further molecular engineering studies.

|  |
| --- |
| Suggested improvements? |

**Sample 3** 2

*Escherichia coli* is one of the best and most thoroughly studied free-living organisms. Members of this species are characterized by remarkable diversity: while some *E. coli* strains live as harmless commensals in mammalian intestines, other distinct genotypes represent serious intestinal pathogens that cause significant morbidity and mortality and are categorized into the six distinct pathotypes ([1](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9600549/#B1)). Yet another group of life-threatening pathogens are extraintestinal *E. coli*, including uropathogenic *E. coli* (UPEC), the most common etiologic agent in approximately 80% of urinary tract infections (UTIs) ([2](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9600549/#B2),[–](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9600549/#B3)[4](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9600549/#B4)). One major difference to intestinal pathogens is that UPEC grow as seemingly harmless commensals in the intestinal environment but rapidly turn into serious pathogens after entry into the urinary tract ([5](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9600549/#B5)). UPEC ascend from the urethra to the bladder, where they adhere to uroepithelial cells, are internalized, and form biofilm-like bacterial communities in the protected intracellular environment of the host cell ([2](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9600549/#B2), [6](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9600549/#B6)).

However, prior to their attachment to uroepithelial cells, UPEC must surpass host defense mechanisms, including phagocytic attack by neutrophils ([2](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9600549/#B2)). Within the phagosome of neutrophils, bacteria are confronted with a complex mixture of antimicrobial compounds, including reactive oxygen and chlorine species (ROS; RCS) ([7](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9600549/#B7), [8](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9600549/#B8)). Production of neutrophilic ROS and RCS, a process named oxidative burst, involves the assembly and activation of NADPH oxidase. This enzyme complex catalyzes the reduction of molecular oxygen to superoxide in the phagosomal space, which is subsequently dismutated to hydrogen peroxide (H2O2). Intracellular granules also release myeloperoxidase into the phagosome, an antimicrobial enzyme that converts H2O2 and available (pseudo-) halides into microbicidal hypohalous acids ([9](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9600549/#B9),[–](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9600549/#B10)[11](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9600549/#B11)). In contrast to H2O2, which shows only very modest reactivity with most cellular macromolecules and is well tolerated by most bacterial species even at millimolar concentrations ([12](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9600549/#B12)), hypochlorous acid (HOCl), the most prominent hypohalous acid, is extremely reactive and already bactericidal at low micromolar levels ([13](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9600549/#B13), [14](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9600549/#B14)). HOCl oxidizes virtually any cellular molecule, including select amino acids, lipids, metal centers, and nucleic acids ([15](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9600549/#B15)). This, in turn, leads to macromolecular damage and, ultimately, microbial death. One well-known target of HOCl is the amino acid cysteine ([8](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9600549/#B8), [9](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9600549/#B9)). HOCl or related chloramines oxidize cysteines to either reversible (i.e., sulfenic acids; disulfide bonds) or irreversible oxidative thiol modifications (i.e., sulfinic and sulfonic acid) ([16](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9600549/#B16)). Reversible thiol modifications often have structural and functional consequences while irreversible thiol modifications can lead to protein aggregation and degradation ([12](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9600549/#B12), [13](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9600549/#B13)).

|  |
| --- |
| Suggested improvements? |

### Exercise B.

### 

Look at your thesis thus far (or any other piece of writing). Go through it, and consider how your writing can be improved. Make the appropriate edits.

### References

1. Lejri, R., Ellafi, A., Valero Tebar, J., Chaieb, M., Mekki, A., Džunková, M., & Ben Younes, S. (2024). Phenotypic characterization for bioremediation suitability of isolates from Southern Tunisian tannery effluent. *Microbiological research*, *285*, 127771. https://doi.org/10.1016/j.micres.2024.127771
2. Zhang, Y., Zheng, Y., Hu, Q., Hu, Z., Sun, J., Cheng, P., Rao, X., & Jiang, X. R. (2024). Simultaneous multiplex genome loci editing of *Halomonas bluephagenesis* using an engineered CRISPR-guided base editor. *Synthetic and systems biotechnology*, *9*(3), 586–593. https://doi.org/10.1016/j.synbio.2024.04.016
3. Sultana, S., Crompton, M. E., Meurer, K., Jankiewicz, O., Morales, G. H., Johnson, C., Horbach, E., Hoffmann, K. P., Kr, P., Shah, R., Anderson, G. M., Mortimer, N. T., Schmitz, J. E., Hadjifrangiskou, M., Foti, A., & Dahl, J. U. (2022). Redox-Mediated Inactivation of the Transcriptional Repressor RcrR is Responsible for Uropathogenic *Escherichia coli*’s Increased Resistance to Reactive Chlorine Species. mBio, 13(5). https://doi.org/10.1128/mbio.01926-22