Dr. Rainer Glaser's Chem 212: Revising Scientific Prose

Why Revise?

1. Understanding: Helps us discover for ourselves what we have to say
2. Communication: Helps us move writer-based prose to reader-based prose
3. Professionalism: Helps us learn to give and receive criticism and to become better at our profession. We ignore criticism at our peril.

Two Sources on Style

The ACS Style Guide, 2nd ed.
Published by Dodd, J.S. (American Chemical Society)

"The Science of Scientific Writing"
Published by George Gopen and Judith Swan in *American Scientist 78*(6) 550-558

Reader Expectations

"The meaning of any prose is not that which the writer intends, but that which <u>readers</u> interpret. Readers interpret prose more easily and more uniformly if information is placed where they <u>expect </u>it. When readers' expectations are met, they are more likely to get the "correct" interpretation." (Gopen & Swan)

Correctness and Choice:
Which figure is clearer?
- See Challenger figures.
- None is incorrect.
- One is clearer as a result of design decisions that correspond to reader expectations.

Correctness and Choice:
Which is clearer?

- There was a lack of evidence on their part in support of their claim.
- Their claim suffered because of their lack of evidence in its support.
- They could not support their claim because they lacked evidence.

Correctness and Choice:
Which is clearer?

- See time/temperature tables
- None is incorrect
- One is clearer as a result of design decisions that correspond to reader expectations

Design Decisions That Aid Clarity
- <u>Single function</u>:
  Readers expect each unit of communication (sentence, paragraph, section, table, figure) to serve a single function. When a unit serves more than one function, readers become confused about the point of the unit. To avoid confusion. Make each unit of discourse serve a single function.
- "Escaping the flatland"
  Edward Tufte's visual metaphor for making each visual figure serve a single function.
- <u>Match structure to function:</u> See Gopen and Swan's summary points, page nine.

Here's the point: Good writers do not merely follow the rules.
They make informed choices that meet <u>readers' expectations</u>.

Readers' Expectations about Content

- Readers expect to discover something new—a new perspective of an old theme, a new solution to an old problem, an old application to a new problem
- Readers (should) expect recent, credible, and accurate evidence for the "solution"
- Readers (should) expect the writer to cite other people's ideas responsibly

Readers' Expectations about Genre

- Readers have unique expectations for the structure of each genre.
- Readers may miss the main point if it isn't placed where they expect it.
  Readers expect the punch line of a joke to come last.
  Readers expect the main idea in an essay to come in the introduction.
  Readers expect a scientific article to have an IMRDC order.

Readers Expect a Bridge Between Old and New Information

- Readers expect to start an essay on familiar ground and then move to the unfamiliar.
- Readers expect to start a paragraph on familiar ground & them move to new ground.
- Readers expect to start each sentence on familiar ground & move to new ground.

Readers Expect Sentences to "Tell a Story": People Do Things

- Express main **characters** as subjects.
- Express their <u>actions</u> as verbs.

1. Once upon a time, there was **Little Red Riding Hood, Grandma, the Woodsman, and the Wolf**. The end. (The characters are not expressed as the subject.)

2. Once upon a time, as a <u>walk</u> through the woods was taking place, a <u>jump</u> out from behind a tree occurred, causing <u>fright</u>. (The actions are not expressed as verbs.)

3. Once upon a time, as a <u>walk</u> through the woods was taking place on the part of **Little Red Riding Hood**, the **Wolf**'s <u>jump</u> out from behind a tree occurred, causing <u>fright</u> in **Little Red Riding Hood**. (The characters are not expressed as the subject, and the actions are not expressed as verbs.)

4. Once upon a time, **Little Red Riding Hood** <u>was walking</u> through the woods, when the **Wolf** <u>jumped</u> out from behind a tree and <u>frightened</u> her. (This sentence has two clauses, and in each clause the character is expressed as the subject and the actions are expressed as verbs.)

5. Despite **her** <u>knowledge</u> of the need by cities for more money, **her** <u>veto</u> of a bigger education budge aimed at giving encouragement to cities for an increase in local taxes. (The characters are not expressed as the subject, and the actions are not expressed as verbs.)

6. Although the **governor** <u>knew</u> that the cities needed more money for schools, **she** <u>vetoed</u> a bigger education budget to encourage the cities to increase their local taxes. (This sentence has two clauses, and in each clause the character is expressed as the subject and the action is expressed as the verb.)

    Note the nominalizations in sentences 2, 3, and 5.
    Nominalizations can be useful: In scientific prose , they permit many concepts to be condensed into a single noun phrase. Nonetheless, as Williams says on page 49, "No feature of style more typically characterizes abstract, indirect, difficult academic and professional writing than lots of nominalizations." (*Style: Ten Lessons in Clarity & Grace,* 5th ed.)

Peer Review Guidelines

Peer review is a professional conversation aimed at helping each other communicate clearly to some particular audience. People who refuse to either give or receive constructive criticism will not develop as professionals.

Matching Structure to Audience Expectations

1. Who is the audience for this writing—and what are the expectations of this audience? (A very technical audience? A modestly technical audience? A general audience?)

2. Why would this audience care to read about this topic? Has the writer provided a sufficient motivation for reading about this topic? Articulated a problem? Amazed us with something we didn't know? Linked the topic to something important to the reader?

3. Has the writer selected the most appropriate genre to communicate this information to this audience—an information-dense scientific article? A journalistic newspaper feature? A persuasive argument?

4. Given the genre, are the key points where the reader will expect them? (Consider: If the reader were simply skimming this, what parts would the reader attend to and what parts would the reader skip?) If YOU simply skim first and last sentence of the intro and the topic sentences and conclusion, do you have a clear skeletal argument? What are the weak links?

Content

1. What is the main claim?

2. Has the writer given us enough background information for the topic? Too much? Not enough?

3. Is the main claim backed up with reasons?

4. Are the reasons supported with evidence that is recent, accurate, and credible?

5. Are counterarguments or other perspectives acknowledged?

6. Are claims appropriately qualified? Are limitations appropriately noted?

7. Are sources appropriately documented?

Style

1. Are there good bridges between the commonly understood information and the new information (in the introduction? At the beginning of each paragraph?)

2. Does each sentence "tell a story," with agents in the subjects and actions in the verbs?