CSE/ISE300 Communications S12

- Time: Tue/Thur 5:20-6:40PM
- Location: Room E4315 Melville Library, 4th floor, east wing
- Required Book: The Elements of Style, 4th edition (Sep 1999), by Strunk & White, 978-0205313426, $10 new (or $5 bookstore rental)
- Free Online Webbook: Technical Writing, by David McMurrey
  http://www.prismnet.com/~hcexres/textbook/
- Recommended Text: Pocket Guide to Technical Communication, 5th ed. (2010), by Pfeiffer, 978-0135063965 $43 SBU new, $22 rent; $29 Amazon new
- Instructor: Professor Larry Wittie  TA: Eric Papenhausen
- Office: CS Building, Room 1308  TA Help: 12-1:30pm Wed, 2110 cs
- Phone: 631-632-8750 (not 2-8456)
- Email: lw@ic.sunysb.edu
- Office Hours: 4-5pm + 7-7:30pm Tue/Thu or by appointment
- Course Homepage: http://www.cs.sunysb.edu/~lw/teaching/cse300

Read Science of Scientific Writing for quiz in class today, Tues, 2/21.
The Science of Scientific Writing
Reader Expectations

Rule 1: “Do Not Confuse the Reader”
Effective writing does not fool the reader.

Set up readers’ expectations and meet them.
Readers should always know how to understand and interpret what they are reading.
What is important; what is ancillary (or secondary).
What is new information; what is old information.

1) Set up context and then
2) Give the critical information.

Every piece of writing ought to have a “story” (or narrative.)
The “story” provides a context and expectations. It tells what the piece is about; who is the player, who is in a supporting role. What is important; what is less important.
The Science of Scientific Writing

Which table format is easier to understand?

Table A: \( t=15, T=32, t=0, T=25, t=6, T=29, t=3, T=27, t=12, T=32, t=9, T=31 \)
or

Table B:

<table>
<thead>
<tr>
<th>Time (min)</th>
<th>Temp (C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>25</td>
</tr>
<tr>
<td>3</td>
<td>27</td>
</tr>
<tr>
<td>6</td>
<td>29</td>
</tr>
<tr>
<td>9</td>
<td>31</td>
</tr>
<tr>
<td>12</td>
<td>32</td>
</tr>
<tr>
<td>15</td>
<td>32</td>
</tr>
</tbody>
</table>

Why is B the better way to display this info?

A has unordered pairs of time, Temp with same comma (,) separators.

B is ordered by a regular sequence of times from row to lower row and regular times (context) are left of varying temps (info) on the right. We read English from left to right: context \( \rightarrow \) information; time \( \rightarrow \) temp. B shows that temperatures stabilized at 32° C after 9 to 11 minutes.
The Science of Scientific Writing
Structure of Prose: Example

“The smallest of the URF’s (URFA6L), a 207-nucleotide (nt) reading frame
overlapping out of phase the NH₂-terminal portion of the adenosinetriphosphatase (ATPase)
subunit 6 gene has been identified as the animal equivalent of the recently discovered
yeast H⁺-ATPase subunit 8 gene. The functional significance of the other
URF’s has been, on the contrary, elusive. Recently, however,
immunoprecipitation experiments with antibodies to purified, rotenone-sensitive NADH-
ubiquinone oxido-reductase [hereafter referred to as respiratory chain NADH dehydrogenase
or complex I] from bovine heart, as well as enzyme fractionation studies, have
indicated that six human URF’s (that is, URF1, URF2, URF3, URF4, URF4L, and
URF5, hereafter referred to as ND1, ND2, ND3, ND4, ND4L, and ND5) encode subunits
of complex I. This is a large complex that also contains many subunits
synthesized in the cytoplasm.”

The gist of this paragraph is “The smallest of the URF’s, an [A], has been
identified as a [B] subunit 8 gene. The functional significance of the other
URF’s has been, on the contrary, elusive. Recently, however, [C]
experiments, as well as [D] studies, have indicated that six human URF’s
[1-6] encode subunits of Complex I. This is a large complex that also
contains many subunits synthesized in the cytoplasm.”
The Science of Scientific Writing

Expectation 1 in the example prose

**Expectation 1:** Subjects are closely followed by verbs.

Expectation 1 follows from need for semantic resolution. After hearing a subject, one expects to hear a verb and waits to hear it. Anything between the subject and the verb is interlude and feels like an interruption. Verbs should closely follow subjects.

For each sentence in the example, underline the subject and verb, and count the words between them. Can you rephrase the sentences to bring subjects and verbs closer together?

(e.g. The smallest of the URF’s is an [A]. It has been identified as a [B] subunit 8 gene.

or

URFA6L is the smallest of the URF’s. It is an [A] and has been identified as a [B] subunit 8 gene.)
Expectation 2: Each unit of discourse makes a single point.

Every unit of discourse, no matter the size, should serve a single function or make a single point. Clauses may elaborate that one point, but those should be (very) subsidiary points. If it is another important thought, it deserves another sentence.

Expectation 3: Emphasized material is at the end of a sentence.

The end of a sentence is the “stress position“. (Why is that? build to climax? momentum? Move to reward?) Put the important point of a sentence at its end so the reader knows what to interpret as important.

Stress position corresponds to the moment of syntactic closure, i.e., nothing more is coming in the clause or sentence that is being read.

What different ways might we say the same thing as sentence 1? In each of these ways, what is emphasized? In other words, what is more important and what is less important?
The Science of Scientific Writing
Summary and Topic Position

As a writer you want to tell the reader what is important and what is supportive. How you put the ideas into sentences and order those sentences should convey your intended meaning.

**Reality 4:** Communication is ambiguous. We cannot make even a single sentence unambiguous. We can only increase the odds that the majority of readers will interpret our discourse as we intend.

The “topic position” begins the sentence and is normally the subject. The beginning of a sentence establishes a perspective for viewing the sentence as a unit. The topic position provides perspective and context to reader. The stress position provides closure and fulfillment. The topic position tells you what (who) the sentence is about.

“Bees disperse pollen” -- story about bees
“Pollen is dispersed by bees.” -- story about pollen

The topic position provides linkage. It connects back to what came before and provides context for what will come next.
Excerpt from “The Science of Scientific Writing” p. 3-4, on website.

Each unit of discourse, no matter what the size, is expected to serve a single function, to make a single point. In the case of a sentence, the point is expected to appear in a specific place reserved for emphasis.

The Stress Position
It is a linguistic commonplace that readers naturally emphasize the material that arrives at the end of a sentence. We refer to that location as a “stress position.” If a writer is consciously aware of this tendency, she can arrange for the emphatic information to appear at the moment the reader is naturally exerting the greatest reading emphasis. As a result, the chances greatly increase that reader and writer will perceive the same material as being worthy of primary emphasis. The very structure of the sentence thus helps persuade the reader of the relative values of the sentence’s contents.

The inclination to direct more energy to that which arrives last in a sentence seems to correspond to the way we work at tasks through time. We tend to take something like a “mental breath” as we begin to read each new sentence, thereby summoning the tension with which we pay attention to the unfolding of the syntax. As we recognize that the sentence is drawing toward its conclusion, we begin to exhale that mental breath. The exhalation produces a sense of emphasis. Moreover, we delight in being rewarded at the end of a labor with something that makes the ongoing effort worthwhile. Beginning with the exciting material and ending with a lack of luster often leaves us disappointed and destroys our sense of momentum. We do not start with the strawberry shortcake and work our way up to the broccoli.

{Emphasis added.}
Within a sentence, secondary stress positions can be formed by the appearance of a properly used colon or semicolon; by grammatical convention, the material preceding these punctuation marks must be able to stand by itself as a complete sentence. Thus, sentences can be extended effortlessly to dozens of words, as long as there is a medial syntactic closure for every piece of new, stress-worthy information along the way. …

By using a semicolon, we created a second stress position to accommodate a second piece of information that seemed to require emphasis.

We now have three rhetorical principles based on reader expectations: First, grammatical subjects should be followed as soon as possible by their verbs; second, every unit of discourse, no matter the size, should serve a single function or make a single point; and, third, information intended to be emphasized should appear at points of syntactic closure. Using these principles, we can begin to unravel the problems of our example prose.

The information that begins a sentence establishes for the reader a perspective for viewing the sentence as a unit. … {Emphasis added.}

The Topic Position
To summarize the principles connected with the stress position, we have the proverbial wisdom, “Save the best for last.” To summarize the principles connected with the other end of the sentence, which we will call the topic position, we have its proverbial contradiction, “First things first.” In the stress position the reader needs and expects closure and fulfillment; in the topic position the reader needs and expects perspective and context. With so much of reading comprehension affected by what shows up in the topic position, it behooves a writer to control what appears at the beginning of sentences with great care.
Memo2 is an English essay due Thursday, 8 March 2012 as one printed copy in class & a .doc file emailed to lw@ic.sunysb.edu
Subject: 300 memo2  Why I Need a New Work Computer.

Put a title, your name and the paper’s last print date centered on a cover page for your “2.2-page” memo. Use 1.5 lines spacing. Make memo lines 6 inches long with 30 lines per page of text. Make the text of your memo from 60 to 75 lines (2 to 2.5 pages, 850 to 1150 words). Address your boss politely. Number your pages.

Assume the reader is your computer-savvy, but non-expert boss in a company with 20 or fewer employees. The boss has announced that the firm will buy new computers for some employees, those most needing one for their jobs. Justify why the firm will benefit from buying you (or your team) new computer(s). Be specific on why you need a new machine, what computer model with what features, and what price from what source. After the 2.2 pages of memo text list all web and printed references used for your paper.
Write a technical essay in English on the topic:
Why I Need a New Work Computer

Explain why you need a new computer, what type, and how it will increase your value to the firm. (In doing so, let me know what is the business of your company, but in a way that will not bore your boss, who knows about the business, but not why you need a new machine for your own job.)

Describe the key features of the new computer and why they are critical.

Tell what brand, model, cost, and vendor precisely. (List websites with these details in a References section at the end.)

Convince your boss to spend a little money.

(Cover page, salutation, and final References list do not count in the 2 to 2.5 pages. Just memo paragraphs count as text; feature lists, quoted material, and images do not.)