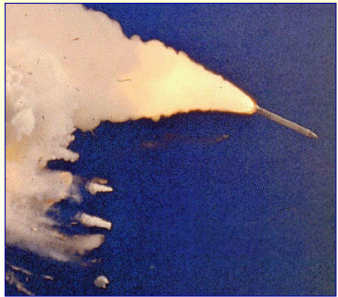
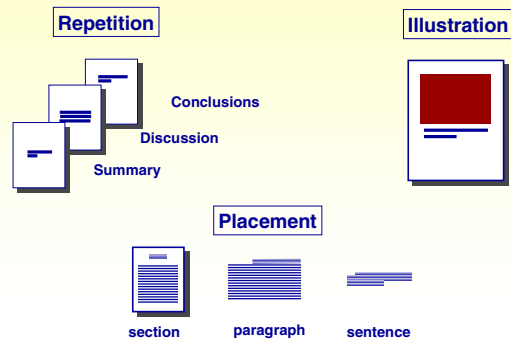


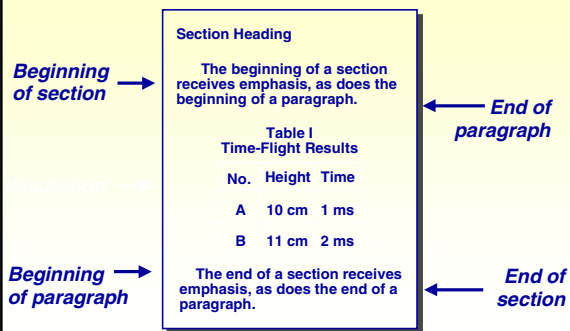
Critical Error 4: Not emphasizing key details



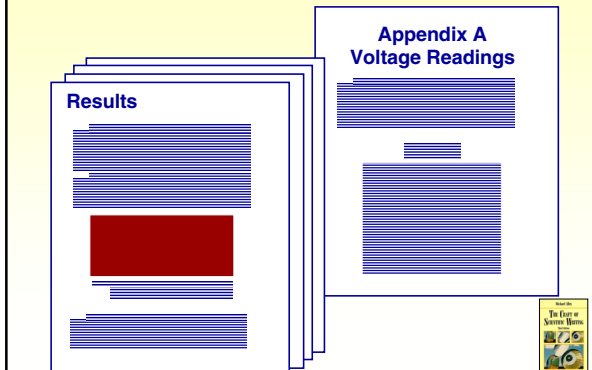
There are many ways to emphasize details in a paper



Placement is one way to accent results within a section



Placement of information into appendices allows you to emphasize key points in main text



Details become lost when they appear in long lists within a paragraph

This report uses data from both the Test and Evaluation and Power Production phases to evaluate the performance of the Solar One receiver. Receiver performance includes such receiver characteristics as point-in-time steady state efficiency, average efficiency, start-up time, operation time, operations during cloud transients, panel mechanical supports, and tube leaks. Each of these characteristics will be covered in some detail in this report.

Lost

&

Found

??

For emphasis, avoid long lists

Excerpt from weak NASA Report prior to Challenger launch

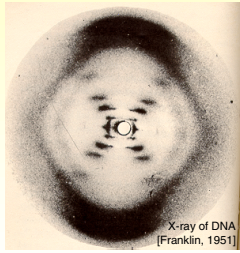
Recommendations

- The lack of a good secondary seal to the field joint is critical and ways to reduce joint criticality should be incorporated as soon as possible.
- The flow conditions in the joint areas during ignition and motor operation need to be established through cold flow modeling to eliminate O-ring erosion.
- QM-5 static test should be used to qualify a second source of the only flight certified joint filler material to protect the flight program schedule.
- VLS-1 should use the only flight certified joint filler material in all joints.
- Additional hot and cold subscale tests need to be conducted to improve analytical modeling of O-ring erosion problem.
- Analysis of existing data indicates that it is safe to continue flying as long as all joints are leak checked with a 200 psig stabilization pressure, are free of contamination in seal areas and meet O-ring squeeze requirements.
- Efforts need to continue at an accelerated pace to eliminate SRM seal erosion.

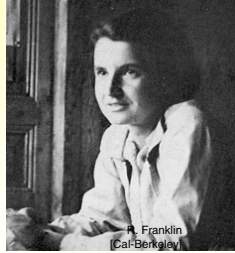
items contradict



Failing to give credit to a source can damage your reputation



X-ray of DNA
(Franklin, 1951)

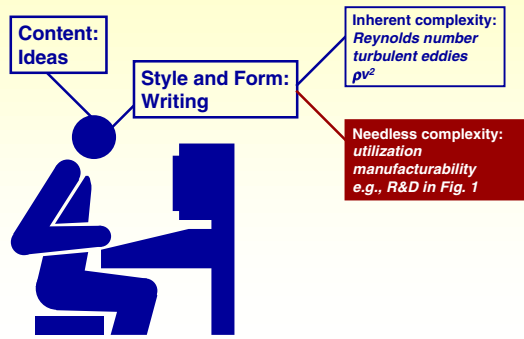


A. Franklin
(Cal-Berkeley)

In searching for the structure of DNA, Watson looked at Franklin's work

Watson is still criticized for not giving proper credit to Franklin

Critical Error 6: Making the writing needlessly complex



Complex wording buries ideas

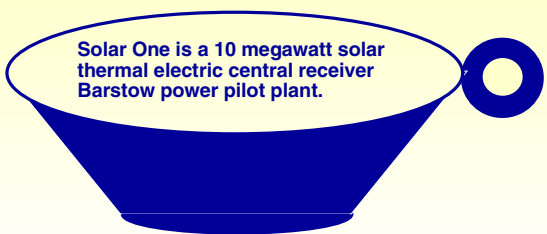
R.I.P.

The goal of this study is to develop a commercialization strategy for solar energy systems by analyzing factors impeding early commercial projects (i.e., SOLAR ONE) and by identifying the potential actions that can facilitate the viability of the projects.



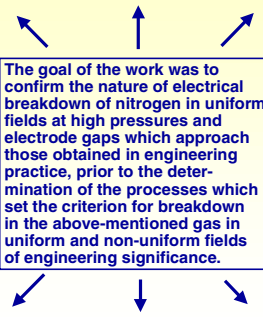
Stacking adjectives before nouns swallows the ideas

Solar One is a 10 megawatt solar thermal electric central receiver Barstow power pilot plant.



Complex sentences misdirect readers

The goal of the work was to confirm the nature of electrical breakdown of nitrogen in uniform fields at high pressures and electrode gaps which approach those obtained in engineering practice, prior to the determination of the processes which set the criterion for breakdown in the above-mentioned gas in uniform and non-uniform fields of engineering significance.



The more muddled the original, the more revisions are needed to streamline it

At high pressures (760 torr) and typical electrode gap distances (1 mm), the electrical breakdown of nitrogen was studied in uniform fields.

In our study, we examined the electrical breakdown of nitrogen in uniform fields. For these experiments, the electrode gap distances were typical (1 mm), while the pressures were relatively high (760 torr).



When you write longer sentences,
give the readers a clue

We have found that these losses arise
predominantly from the flow control valve, so we
have decided to alter the accumulator and piston
actuator.



Because these losses arise predominantly from the
flow control valve, we recommend altering the
accumulator and piston actuator.



One measure for the complexity of the writing is the Gunning Fog Index

In the index, the complexity
of the writing depends on
(1) the lengths of sentences
(2) the lengths of words

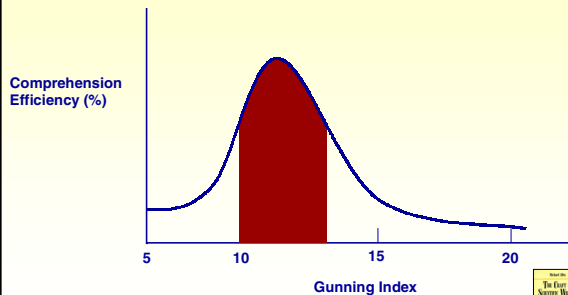
Desired index values for
scientific writing are 10-12:
New York Times (11)
Scientific American (12)

$$F_i = 0.4 \left((N_w / N_s) + P_{lw} \right)$$

N_w = number of words in a *typical* paragraph
 N_s = number of sentences in the paragraph
 P_{lw} = percentage of long words in the paragraph



For an educated audience, an index between 10
and 13 communicates the most efficiently



Critical Error 5: Not using one's writing time effectively

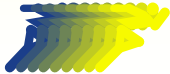
Getting in the Mood



Writing the First Draft



Revising, Revising, Revising



Finishing