
GEORGE GOPEN'S 
Reader Expectation Approach
Seminar Workbook

REA: Intermediate Applications
Building on Day One: Applying REA to Professional Writing Challenges

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Exercise 1 — Scientific Writing from the Reader's Perspective

- 1.** A because of the the the this to to which expected its most necessary particular single clues English interpretation it language meaning order people readers sentence word convey does gives lacks not.

- 2.** This sentence does not convey a single particular meaning to most people because it lacks the expected word order of the English language, which gives readers the necessary clues to its interpretation.
 - 3a.** What would be the employee reception accorded the introduction of such a proposal?
 - 3b.** How would the employees receive such a proposal?
 - 3c.** How would the employees receive such a proposal if the medical board introduced it at this time?

Exercises 4–5 — Agency, Voice & Clarity

- 4a.** The effects reported in this study have one of two explanations. Either the congeners themselves have direct and permanent effects upon the central nervous system, or there may be a retardation of the metabolism of ethanol by the congeners so that it has a stronger effect. The probability of the latter is less, because the observation of the effects occurred well after the blood alcohol concentrations were immeasurably small.
- 4b.** We can explain our results in one of two ways. Either the congeners themselves directly and permanently affect the central nervous system, or the congeners retard the metabolism of ethanol so that it affects the nervous system more strongly. Retardation is less probable, though, because we observed the effects well after the blood alcohol concentrations were immeasurably small.
- 5.** Andrus also concedes that surface coal mining operations will destroy wildlife. He contends that “while reduced populations will result from increased human activity in the areas and from the loss of habitat, no adverse long-term impact is anticipated.”

Exercise 6 — Scientific Prose (*A. fumigatus*)

- 6a.** The GS of *A. fumigatus* was prepared as described by B. et al. Briefly, frozen mycelial cells were broken at 4°C with 500 mm-diameter glass beads. Cleared lysates were obtained by low-speed (2000 X g) centrifugation of the lysed cell suspension. The lysates were then submitted to a high-speed centrifugation (100,00 X g) to pellet the membranes, which were washed and subsequently homogenized in cold extraction buffer. The protein concentration in the homogenates was determined with the B-R Protein Assay Concentrate according to the manufacturer's instructions and was adjusted to 1mg/ml with extraction buffer. Membranes were then frozen in a dry-ice methanol bath and were stored at -80°C. This material was defined as the membrane preparation.
- 6b.** We prepared the GS of *A. fumigatus* as described by B. et al. Briefly, we broke frozen mycelial cells at 4°C with 500 mm-diameter glass beads. We obtained cleared lysates by low-speed (2000 X g) centrifugation of the lysed cell suspension. We then submitted the lysates to a high-speed centrifugation (100,00 X g) to pellet the membranes, which we washed and subsequently homogenized in cold extraction buffer. We determined the protein concentration in the homogenates with the B-R Protein Assay Concentrate according to the manufacturer's instructions and adjusted it to 1mg/ml with extraction buffer. We froze the membranes in a dry-ice methanol bath and stored them at -80°C. We defined this material as the membrane preparation.
- 6c.** We prepared the GS of *A. fumigatus* as described by B. et al. Briefly, Ellen broke frozen mycelial cells at 4°C with 500 mm-diameter glass beads. She obtained cleared lysates by low-speed (2000 X g) centrifugation of the lysed cell suspension. Mark then submitted the lysates to a high-speed centrifugation (100,00 X g) to pellet the membranes, which I washed and subsequently homogenized in cold extraction buffer. Mark determined the protein concentration in the homogenates with the B-R Protein Assay Concentrate according to the manufacturer's instructions and Ellen adjusted it to 1mg/ml with extraction buffer. She then froze the membranes in a dry-ice methanol bath and stored them at -80°C. We all defined this material as the membrane preparation.
- 6d.** The GS of *A. fumigatus* was prepared as described by B. et al. Briefly, frozen mycelial cells were broken at 4°C with 500 mm-diameter glass beads. Cleared lysates were obtained by low-speed (2000 X g) centrifugation of the lysed cell suspension. The lysates were then submitted to a high-speed centrifugation (100,00 X g) to pellet the membranes, which were washed and subsequently homogenized in cold extraction buffer. The protein concentration in the

homogenates was determined with the B-R Protein Assay Concentrate according to the manufacturer's instructions and was adjusted to 1mg/ml with extraction buffer. Membranes were then frozen in a dry-ice methanol bath and were stored at -80°C . We defined this material as the membrane preparation.

Exercises 7–9 — Legal Prose & Stress Position

7. The trial court’s conclusion that the defendants made full disclosure of all relevant information bearing on the value of Knaebel’s stock is clearly erroneous.
8. Any assertion that chemical “retesting” is a valid technique but because of a time lag has not been recognized by the scientific community is untenable.
- 9a. Similarly, in Weaver, the D.C. Court of Appeals held that the qualifying word “estimate” used in conjunction with the stipulations and conditions that the quantities were “to be used to canvass bids” and “not to be the basis for any payment by the ultimate consumer of the products” and that payments would be made “only for actual quantities of work completed,” transformed the contract into a requirements contract.

9b. (with S/V/T annotations)

S1

Similarly, in Weaver, the D.C. Court of Appeals

V1 T1 S2

held that the qualifying word “estimate” used in conjunction with the stipulations and conditions

T2 S3 V3

that the quantities were “to be used to canvass bids” and “not to be the basis for any payment by the ultimate consumer of the products” and

T3 S4 V4

that payments would be made “only for actual

V2

quantities of work completed,” transformed the contract into a requirements contract.

Exercise 20 — Grant Proposal: Gonadotropin Research

- 20.** First, the mechanisms of development and tissue specific control of the gonadotropin genes in pituitary cells, including the roles of both transcriptional activation and restriction in directing unique patterns of gene expression, will be assessed. Second, the molecular basis of hormonal regulation of gonadotropin gene expression, with emphasis on induction of gene expression by hypothalamic gonadotropin-releasing hormone (GnRH) and repression by gonadal steroids will be determined. Finally, the molecular events determining the developmental lineage of the gonadotrope in the anterior pituitary, utilizing approaches in transgenic mice including targeted immortalization, cell ablation, and ectopic expression of regulatory proteins, will be investigated.

Exercise 22 — Sentence Variation & Emphasis

Consider the range of meanings that emerge from these sentence variations:

22. The pie smashed John in the face.

Mary smashed John in the face with the pie.

Mary smashed the pie into John's face.

John's face was smashed by the pie.

John's face was smashed by Mary.

John's face suffered under Mary's pie attack.

John suffered severe injuries as a result of Mary's pie attack.

Defendant maliciously and without provocation smashed the pie into the plaintiff's face.

Plaintiff suffered severe and irreversible damages as a proximate result of defendant's malicious and unprovoked pie attack.

Exercises 23 — Qualifying Clauses & Extreme Outrage

- 23a.** The establishment of a new maintenance shift with a new starting time — even if that starting time were to coincide with an established starting time for non-maintenance jobs, such as 12:00 midnight — would also require Union agreement.
- 23b.** Union agreement would also be required before [] could establish a new maintenance shift with a new starting time — even if that starting time were to coincide with an established starting time for non-maintenance jobs, such as 12:00 midnight, and I could go on further to add more details and the main thrust of the sentence would still be perceivable.
- 24.** Churches exhorting members to sever family and marital ties, rodent infestation, and employee discharge, and a refusal to make a retraction in a newspaper, were all considered outside the net of “extreme and outrageous.”

Exercises 25 — Academic Responsibility & Punctuation

25a. A gross violation of academic responsibility is required to dismiss a tenured faculty member for cause, and an elaborate hearing procedure with a prior statement of specific charges is provided for before a tenured faculty member may be dismissed for cause.

25b. In order for a university to dismiss a tenured faculty member for cause, it must prove a gross violation of academic responsibility.

25c. Even when a gross violation of academic responsibility is uncovered, the University may still not dismiss a tenured faculty member until it (1) formally makes the faculty member aware of the specific charges, and (2) provides an elaborate hearing.

26a. This film has been modified from its original version. It has been formatted to fit your TV.

26b. This film has been modified from its original version: It has been formatted to fit your TV.

Exercises 27–30 — Industry Terms, Grant Review & Data

- 27.** As used in the foundry industry, turn-key means responsibility for the satisfactory performance of a piece of equipment in addition to the design, manufacture, and installation of that equipment. P et al agree that this definition of turn-key is commonly understood in the foundry industry.
- 28.** The techniques for performing the latter are very briefly described (perhaps, indicative of the inexperience of the applicant in measuring transcription and mRNA stability), but assuming that the assays are competently performed, their proposed utilization overlooks the fact that the preliminary data presented indicates that there are no changes in mRNA abundance with vitamin D induction (and, consequently, no reason to measure transcription rates or message stability).
- 29.** A disease that progresses with few or no symptoms to indicate its gravity is an “insidious” disease, under this definition. Asbestosis, neoplasia, mesothelioma, and bronchogenic carcinoma are all examples of insidious diseases. Asbestos insulation installers who have inhaled asbestos fibers over a period of many years regularly contract these diseases.
- 30.** The utilization of dextropropoxyphene products has been increasing gradually since 1981. Sales of these products have risen significantly in 1983 as a result of several factors, including the withdrawal of Zomax from the market in March 1983 and the Tylenol scare in 1982. Total prescriptions for dextropropoxyphene products continue to show strong and consistent growth since the removal of Zomax.

Exercise 31 — Stress Position: Fred and His Dog

31. Fred and His Dog

- a. Although Fred's a nice guy, he beats his dog.
- b. Although Fred beats his dog, he's a nice guy.
- c. Fred's a nice guy, but he beats his dog.
- d. Fred beats his dog, but he's a nice guy.
- e. Fred is a good husband, a caring father, a fine colleague, and an altogether nice guy, even though he beats his dog.
- f. Even though he beats his dog, Fred is a good husband, a caring father, a fine colleague, and an altogether nice guy.

Exercises 32–33 — MRX Plan & Grant Review

- 32a.** We should invest in the MRX plan, even though the risks are high.
- 32b.** Even though the risks are high, we should invest in the MRX plan.
- 32c.** Even though the risks are high, we should draw upon whatever funds are available and invest in the MRX plan.
- 33.** While the hypothesis from this highly qualified investigator is novel, the rationale is poorly justified, the studies lack the input of an expert in metabolism, and a more simple approach should be used first to assess the validity of the primary hypothesis with preliminary data and reduction in cost and risk to the experimental subjects.

Exercise 34 — Stress Position in Grant Review

- 34a.** This is an exciting, but somewhat flawed application from a creative investigator.
- 34b.** This creative investigator has produced an exciting but somewhat flawed application.
- 34c.** This creative investigator has produced a somewhat flawed but exciting application.
- 34d.** This creative investigator has produced a somewhat flawed but truly exciting application.

22. The Three Units of Discourse You Must Come to Recognize

1. The Main Clause
2. The Qualifying Clause
3. The Phrase

“Unit of Discourse” —

Any group of consecutive words that has a beginning and an end

“Main Clause” —

Any unit of discourse that (1) contains both a subject and a verb and (2) can stand by itself as a whole sentence

“Qualifying Clause” —

Any unit of discourse that (1) contains both a subject and a verb but (2) *cannot* stand by itself as a whole sentence

“Phrase” —

Any unit of discourse that does not qualify as a clause because it lacks either a subject or a verb or both

23. Current Statistics

- **Average words per scientific sentence:** 28.89
- **Sentences with more than a main clause:** 49.8%
- **Sentences with more than one clause that have a main clause first problem:** 91.0%

Exercise 35 — Sentence Subdivision (CMA Research)

- 35a.** Inhibition of CMA in heart unexpectedly confers resistance to stress-induced cardiac dysfunction in both pressure overload and myocardial infarction models, which is opposite to MA deficiency in heart, and differs from CMA deficiency in other tissues.
- 35aa.** Inhibition of CMA in heart unexpectedly confers resistance to stress-induced cardiac dysfunction // in both pressure overload and myocardial infarction models, // which is opposite to MA deficiency in heart, // and differs from CMA deficiency in other tissues. //
- 35b.** Inhibition of CMA in heart unexpectedly confers resistance to stress-induced cardiac dysfunction. This happens in both pressure overload and myocardial infarction models: In heart, this is opposite to MA deficiency; in other tissues, it differs in CMA deficiency.

Exercise 36 — Political Prose: Reagan & Soviet Relations

36a.

I have refrained directly from criticizing the President for three years. Because I believe that Americans must stand united in the face of the Soviet Union, our foremost adversary and before the world, I have been reticent. A fair time to pursue his goals and test his policies is also the President's right, I believe. The water's edge is the limit to politics, in this sense. But this cannot mean that, if the President is wrong and the world situation has become critical, all criticism should be muted indefinitely.

A fair chance has been extended the President, and policies that make our relationship with the Soviet Union more dangerous than at any time in the past generation no longer deserve American support and support cannot be expected.

Reagan administrative diplomacy has had this grim result: We could face not the risk of nuclear war but its reality if we allow present developments in nuclear arms and United States-Soviet relations to continue.

36b.

For three years, I have refrained from directly criticizing the President of the United States. I have been reticent because I believe that Americans must stand united before the world, particularly in the face of our foremost adversary, the Soviet Union. I also believe a President should be given fair time to pursue his goals and test his policies. In this sense, politics should stop at the water's edge. But this cannot mean that all criticism should be muted indefinitely, no matter how wrong a President may be or how critical the world situation may become.

President Reagan has had his fair chance, and he can no longer expect Americans to support policies that make our relationship with the Soviet Union more dangerous than at any time in the past generation.

This is the grim result of Reagan Administrative diplomacy: If present developments in nuclear arms and United States-Soviet relations are permitted to continue, we could face not the risk of nuclear war but its reality.

Exercise 37 — Paragraph Opening: Space Shuttle

- 37a.** Much has happened since the Apollo program and the Mercury and Gemini missions that paved the way for it in the early 1960's. Numerous scientific and communications satellites have been launched into Earth orbit. Unmanned deep-space probes have been sent to the sun, the moon, and the planets, where they gathered a wealth of information about our solar system. Skylab demonstrated that American astronauts could live and work in space for months at a time. And a dramatically different launch vehicle entered service: the space shuttle. The winged reusable craft was supposed to make space flight routine and cheap.
- 37b.** Numerous scientific and communications satellites have been launched into Earth orbit. Unmanned deep-space probes have been sent to the sun, the moon, and the planets, where they gathered a wealth of information about our solar system. Skylab demonstrated that American astronauts could live and work in space for months at a time. And a dramatically different launch vehicle entered service: the space shuttle. The winged reusable craft was supposed to make space flight routine and cheap. Much has happened since the Apollo program and the Mercury and Gemini missions that paved the way for it in the early 1960's.

Exercise 38 — Paragraph Structure: South Africa Letter

38.

As a concerned citizen of the United States, I am writing to you to express my disapproval of the current state of affairs in South Africa. Certainly you are aware of the system of apartheid, which has been in effect for some three hundred years. Apartheid is a system of racial segregation in housing, education, and commerce throughout the various provinces of South Africa. It is propagated by the government of South Africa, which is composed entirely of whites, in a nation with a large black majority. The government keeps the black majority in a state of disenfranchisement and denies all means of self determination to the country's majority.

Mr. President, this flagrant disregard for human rights and democratic principles flies in the face of all accepted principles of democracy and morality. Seeds of rebellion are being sewn by black opposition leaders in South Africa. A liberated black majority in South Africa is a nation whose time has come. There will be no turning back. Considering the geopolitical position which South Africa maintains, I urge you not to alienate the emerging black revolutionary forces which will inevitably claim power in South Africa. Please pledge the complete support of the United States to ending apartheid in South Africa and ensuring a healthy relationship with the new government that is to come.

Books

Expectations: Teaching Writing from the Reader's Perspective. Pearson/Longman, 2004.

The Sense of Structure: Writing from the Reader's Perspective. Pearson/Longman, 2004.

Gopen's Reader Expectation Approach to the English Language: A New Tweetment. ThiNKaha Publications, 2016.

The New Science of Scientific Writing. Anthem Press, June 2026.

The Shape of English. Anthem Press, September 2026.

Articles Available on GeorgeGopen.com

"Writing to Facilitate Reading: Supplying Full Grammatical Closure to Main Clauses Makes a Significant Difference in Reader Comprehension." *American Scientist*, Jan–Feb 2023, 28–33.

"Getting the Point Across." *American Scientist*, Nov–Dec 2022, p. 346–351.

"The Science of Scientific Writing." (With Judith Swan.) *American Scientist*, Nov–Dec 1990.

Recognized as one of the 36 Classic Articles in the journal's 100-year history; leads its citation index.

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