

Appendix B

Formal Elements of Document Design

The formal elements of document design make technical documents, whether in print or on the Web, more accessible and readable for users. For example, a well-designed table of contents in a printed document allows readers to access and read the sections important to them. Similarly, a well-designed menu of links at the top and bottom of each Web page allows users to navigate the pages with a minimum of scrolling.

This appendix deals with five such formal elements:

- Report Format
- Letter and Memorandum Format (see page 637)
- Documentation (see page 649)
- Designing a World Wide Web Site (see page 675)
- Outlining (see page 681)

REPORT FORMAT

Prefatory Elements

Letter of Transmittal and Preface
Cover
Title Page
Table of Contents
List of Illustrations
Glossary and List of Symbols
Abstracts and Summaries

Main Elements

Introduction
Discussion
Ending

Appendixes

Our approach to format is descriptive, not prescriptive; that is, we describe some of the more conventional practices used in technical reporting. We realize fully, and you should too, that many colleges, companies, and journals call for practices different from the ones we describe. Therefore, we do not recommend that you follow at all times the practices in this section. If you are a student, however, your instructor may, in the interest of class uniformity, insist that you follow this section fairly closely.

Chapter 11, Document Design, discusses strategies for achieving good design. In this section, we discuss the elements—the tools you can use to carry out those strategies. We divide the elements into three groups: prefatory elements, main elements, and appendixes. If you are writing a report that will require you to cite sources, see also the section on Documentation in this appendix.

PREFATORY ELEMENTS

Prefatory elements help your readers to get into your report. The letter of transmittal or preface may be the readers' first introduction to the report. The table of contents reveals the structure of your report.

In the glossary, readers will find the definitions of terms that may be unfamiliar to them. All the prefatory elements discussed in this section contribute to the success of your report.

Letter of Transmittal and Preface

We have placed the letter of transmittal and preface together because they are often quite similar in content. They usually differ in format and intended audience only. You will use the letter of transmittal when the audience is a single person or a single group. Many of your reports in college will include a letter of transmittal to your professor, usually placed just before or after your title page. When on the job, you may handle the letter differently. Often, it is mailed before the report, as a notice that the report is coming, or it may be mailed at the same time as the report but under separate cover.

Typically, you use a preface for a more general audience when you do not know specifically who will be reading your report. The preface or letter of transmittal introduces the reader to the report. It should be fairly brief, but it should always include the following basic elements:

- Statement of transmittal or submittal (included in the letter of transmittal only)
- Statement of authorization or occasion for report
- Statement of subject and purpose

Additionally, you may include some of the following elements in a letter of transmittal or a preface:

- Acknowledgments
- Distribution list (list of those receiving the report—used in the letter of transmittal but not in the preface)
- Features of the report that may be of special interest or significance
- List of existing or future reports on the same subject
- Background material

- Summary of the report
- Special problems (including reasons for not meeting objectives)
- Financial implications
- Conclusions and recommendations

How many of the secondary elements you include depends on the structure of your report. If your report's introduction or discussion includes background information, there may be no point in including such material in the preface or letter of transmittal. See Figures B-1 and B-2 for a sample letter of transmittal and a sample preface.

If the report is to remain within an organization, the letter of transmittal will become a memorandum of transmittal. This changes nothing but the format. (See Letter and Memorandum Format in this appendix.)

Cover

A report's cover serves three purposes. The first two are functional and the third aesthetic and psychological.

First, covers protect pages during handling and storage. Pages ruck up, become soiled and damaged, and may eventually be lost if they are not protected by covers. Second, because they are what readers first see as they pick up a report, covers are the appropriate place to display identifying information such as the report title, the company or agency by or for which the report was prepared, and security notices if the report contains proprietary or classified information. Incidentally, students should not print this sort of information directly on the cover. Rather, they should put the information onto gummed labels, readily obtainable at the college bookstore, and then fasten the labels to the cover. A student label might look like the one in Figure B-3.

Finally, covers bestow dignity, authority, and attractiveness. They bind a bundle of manuscript pages into a finished work that looks and feels like a report and has some of the characteristics of a printed and bound book.

Suitable covers need not be expensive and sometimes should not be. Students, particularly, should avoid being pretentious. All three purposes may be served by covers of plastic or light cardboard (perhaps 30- or 40-pound weight). You can buy such covers in a variety of sizes, colors, and finishes.

While you are formatting your report, remember that when you fasten it into its cover, about an inch of the left margin will be lost. If you want an inch of margin, you must leave two inches on your paper. Readers grow irritated when they must exert brute force to bend open the covers to see the full page of text.

Title Page

Like report covers, title pages perform several functions. They dignify the reports they preface, of course, but far more important, they provide identifying matter and help to orient the report users to their reading tasks.

To give dignity, a title page must be attractive and well designed. Symmetry, balance, and neatness are important. The most important items should be printed boldly; items of lesser importance should be subordinated. These objectives are sometimes at war with the objective of giving the report users all the data they may want to see at once. Here we have listed, in random order, the items that sometimes appear on title pages. A student paper, of course, would not require all or even most of these items. The first four items are usually sufficient for simple title pages.

- Name of the company (or student) preparing the report
- Name of the company (or instructor and course) for which the report was prepared
- Title and, sometimes, subtitle of the report
- Date of submission or publication of the report
- Code number of the report
- Contract numbers under which the work was done
- List of contributors to the report (minor authors)
- Name and signature of the authorizing officer
- Company or agency logo and other decorative matter
- Proprietary and security notices
- Abstract
- Library identification number
- Reproduction restrictions
- Distribution list (a list of those receiving the report). If the letter of transmittal does not contain this information, the title page should.

Of course, placing all of these items on an 8½- by 11-inch page would guarantee a cluttered appearance. Include what you must, but no more.

Word processing programs allow report writers to use different type sizes and styles on a title page to indicate what is important and what is subordinate. Use this capability discreetly. Don't turn your title page (or any other part of your report) into a jumble of different typefaces. Generally, different type sizes and the use of boldface and plain style will suffice.

Figure B-4 illustrates a title page prepared with a word processor.

Pay particular attention to the wording of your title. Titles should be brief but descriptive and specific. The reader should know from the title what the report is about. A title such as "Effects of Incubation Temperatures on Sexual Differentiation in Turtles: A Geographic Comparison" is illustrative. From it, you know specifically the research being reported. To see how effectively this title

works, leave portions of it out, and see how quickly your understanding of what the article contains changes. For example, “Sexual Differentiation in Turtles” would suggest a much more comprehensive report than does the actual title. A title such as “Effects of Incubation Temperatures” could as well be about chickens as turtles. On the other hand, adding the words “An Investigation into” to the beginning of the title would add nothing useful. The test of whether a title is too long or too short isn’t in the number of words it contains but what happens if words are deleted or added. Keep your titles as brief as possible, but make sure they do the job.

Table of Contents

A table of contents (TOC) performs at least three major functions. Its most obvious function is to indicate the page on which discussion of each major topic begins; that is, it serves the reader as a locating device. Less obviously, a TOC forecasts the extent and nature of the topical coverage and suggests the logic of the arrangement and the relationship of the parts. Still earlier, in the prewriting stage, provisional drafts of the TOC enable the author to “think on paper”; they act as outlines to guide the composition.

A system of numbers, letters, type styles, indentations, and other mechanical aids has to be selected so that the TOC will perform its intended functions. Figure B-5 shows a TOC suitable for student reports. We have annotated the figure to draw your attention to a few key points. However, the annotations are suggestions only. There are many acceptable variations in TOCs. For example, the leader dots in Figure B-5 carry the reader’s eyes from the end of each title to the page number and tie the page together visually. However, use of leader dots is by no means universal. Some people feel the leader dots clutter the page and, therefore, don’t use them. If you use a numbering system in your report (see pages 262–264), the TOC should reflect that system.

In Figure B-6, we reproduce a professionally created TOC that shows a good use of word processing capabilities. When you design your own TOC, avoid overcrowding. Seldom is there justification for going beyond three levels of headings; beyond three levels, users have almost as much trouble locating items in the TOC as they have in locating them by flipping through the report.

Be sure that page numbers in your TOC match the page numbers in your final draft. Remember that the wording of the TOC entries and the headings on the text pages must be exactly the same. Every entry in the TOC must also be in the report. However, every heading in the report need not be in the TOC. That is, if you have four levels of headings in your report, you might list only the top three levels in your TOC.

List of Illustrations

If a report contains more than a few illustrations, say more than three or four, it's customary to list the illustrations on a separate page or on the TOC page. Illustrations are of two major types: tables and figures. A table is any array of data, often numerical, arranged vertically in columns and horizontally in rows, together with the necessary headings and notes. Figures include photographs, maps, graphs, organization charts, and flow diagrams—literally any illustration that does not qualify as a table by the preceding definition. (For further details, see Chapter 12, Using Illustrations.)

If the report contains both tables and figures, it's customary to use the page heading "Illustrations" or "Exhibits" and to list all the figures first and then all the tables. If you have all of one kind of figure in your report, you can use the appropriate term as your heading; for example, "Maps" is used as a heading in Figure B-7. If you have various kinds of figures, use "Figures" as your heading.

Illustration titles should be as brief and yet as self-explanatory as possible. Avoid a cumbersome expression such as "A Figure Showing Characteristic Thunderstorm Recording." Say, simply, "Characteristic Thunderstorm Recording." On the other hand, do not be overly economical and write just "Characteristic" or "A Comparison." At best, such generic titles are only vaguely suggestive.

The simple list in Figure B-7 should satisfy most needs. Notice that arabic numerals are used for figures and roman numerals for tables. This practice is common but by no means standard. Make sure that your page numbers are correct and that the titles listed accurately repeat the titles in the report.

Glossary and List of Symbols

Reports dealing with technical and specialized subject matter often include abbreviations, acronyms, symbols, and terms not known to the nonspecialist. Thus, a communication problem arises. Technically trained persons have an unfortunate habit of assuming that what is well known to them is well known to others. This assumption is seldom justified. Terms, symbols, and abbreviations change in meaning with time and context. In one context, ASA may stand for American Standards Association; in another context, for Army Security Agency. The letter K may stand for degrees Kelvin or for the element potassium. The meanings given to Greek letters may change from one report to the next, even though both were done by the same person.

Furthermore, writers seldom have complete control over who will read their reports. A report intended for an engineering audience may have to be read by managers, legal advisors, or sales representatives. It is wise to play it safe by including a list of symbols or a glossary or both. Readers who do not need these aids can easily ignore them; those who do need them will be immeasurably

grateful.

The list of symbols is normally a prefatory element. A glossary may be a prefatory element or placed as an appendix at the end of the report. When you first use a symbol found in your list of symbols or a term found in the glossary, tell your reader where to find the list or the glossary. Figure B-8 illustrates a list of symbols. Figure B-9 illustrates a glossary.

Abstracts and Summaries

Abstracts and summaries are overviews of the facts, results, conclusions, and recommendations of a report. In many formats, such as empirical research reports and feasibility reports, abstracts or summaries will be placed near the front of the report. In that position, they both summarize the report and allow busy readers to decide whether they want to read further. Both executives and experts expect the abstract or summary to come early in the report.

In more discursive reports—such as magazine articles—summaries most often come at the end of the report, where they serve to draw things together for the reader. Many reports, particularly empirical research reports, have an abstract at the beginning and a summary at the end. These facts raise the question of when an overview is an abstract and when it is a summary. In general, these principles hold true:

- Abstracts are placed before technical reports, such as empirical research reports, meant for technical audiences.
- Summaries are placed before business and organizational reports such as proposals and feasibility reports. When the audience is primarily an executive audience, the summary will be known as an executive summary.
- An overview placed at the end of a report will probably be called a summary.

Because abstracts and executive summaries always appear as prefatory elements, we discuss them in this section. We discuss other types of summaries, conclusions, and recommendations on pages 629–630, where we discuss how to end a report.

Abstracts Discussed here are abstract style and two kinds of abstracts: informative and descriptive. Never use “I” statements in either kind of abstract. Report your information impersonally, as though it were written by someone else. The informative abstract in Figure B-10 illustrates the style. This is not an arbitrary principle. If you were to publish your report, your abstract would likely be reprinted in an abstracting journal, where the use of I would be inappropriate. Also, many companies, in the interest of good intracompany communication, publish the abstracts of all company research reports. The restriction on the use of I makes the use of passive voice common in abstracts. Because your full report contains complete documentation, you need not footnote or otherwise

document the information in abstracts.

An informative abstract like that of Figure B-10 is most often intended for an expert audience; therefore, the author can use the technical language of the field freely. Write an informative abstract so that readers will understand

- The objectives of the research or the report
- The methodology used in the research
- The findings of the report, including the results and conclusions and, when appropriate, the recommendations

Most professional journals or societies publish stylebooks that include specifications for writing abstracts. Many journals, because of high publication costs, set arbitrary limits of under two hundred words for abstracts. Because abstract writing uses many of the techniques used in summary writing, you might want to read what we say about that subject on pages 629–630.

The main purpose of the descriptive abstract is to help busy readers decide whether they need or want the information in the report enough to read it entirely. The descriptive abstract merely tells what the full report contains. Unlike the informative abstract, it cannot serve as a substitute for the report itself. Many reports contain descriptive abstracts, and many abstracting journals print them. The abstract included on the title page in Figure B-4 and the abstract in Figure B-11 are typical of the content and style of a descriptive abstract. Whether a report is ten or a thousand pages long, a descriptive abstract can cover the material in less than ten lines. The descriptive abstract discusses the *report*, not the subject.

Executive Summary Placed at the front of a report, the executive summary ensures that the points of the report important to an executive audience are immediately accessible. To that end, it is written in a nontechnical language suited to an executive audience. Seldom more than one page long, double spaced, it emphasizes the material that executives need in their decision-making process. It need not summarize all the sections of the report. For example, writing for a combined audience of scientists and executives, a writer might include a theory section in a report. The executive summary might skip this section altogether or treat it very briefly.

In their decision making, executives weigh factors such as markets, risks, rewards, costs, and people. If your report recommends buying new equipment, they want to be assured that you have examined all reasonable alternatives and considered cost, productivity, efficiency, profits, and staffing. If you are reporting research, executives take your methodology for granted. They care very little for the physics, chemistry, or sociology behind a development. What they want to know are your results and the implications of those results for the organization.

Figure B-12 lists the questions that executives ask in different situations

and that, therefore, an executive summary should answer. The annotated executive summary in Figure B-13 illustrates the style and the major parts of an executive summary.

Place an executive summary immediately before the introduction and label it Summary or Executive Summary. In short reports and memorandum reports, the executive summary often replaces the introduction and is followed immediately by the major discussion.

MAIN ELEMENTS

The body of a report contains detailed information and interpretation. The body needs to be introduced and, normally, finished off with an ending of some sort that may include a summary, conclusions, recommendations, or simply a graceful exit from the report. We discuss all these elements in this section on main elements.

Introduction

A good introduction forecasts what is to follow in the rest of the report. It directs the reader's mind to the subject and purpose. It sets limits on the scope of the subject matter and reveals the plan of development of the report. Early in your paper you also give any needed theoretical or historical background, and this is sometimes included as part of the introduction.

Subject Never begin an introduction with a superfluous statement. The writer who is doing a paper on read-only memory in computers and begins with the statement "The study of computers is a vital and interesting one" has wasted readers' time and probably annoyed them as well. Announce your specific subject loudly and clearly and as early as possible in the introduction, preferably in the very first sentence. The sentence "This paper will discuss several of the more significant applications of the exploding wire phenomenon to modern science" may not be very subtle, but it gets the job done. The reader knows what the subject is. Often, in conjunction with the statement of your subject, you will also need to define some important terms that may be unfamiliar to your readers. For example, the student who wrote the foregoing sentence followed it with these two:

A study of the exploding wire phenomenon is a study of the body of knowledge and inquiry around the explosion of fine metal wires by a sudden and large pulse of current. The explosion is accompanied by physical manifestations in the form of a loud noise, shock waves, intense light for a short period, and high temperatures.

In three sentences the writer announces the subject and defines it. The paper is well under way.

Sometimes, particularly if you are writing for nonspecialists, you may introduce your subject with some interest-catching facts. The following example introduces an article on preventing childhood poisoning:

Most people regard their home as a safe haven, a calming oasis in an often stormy world. But home can be a dangerous place when it comes to accidental poisoning, especially accidental poisoning of children. One tablet of some medicines can wreak havoc in or kill a child.

Childhood poisonings caused by accidental overdoses of iron-containing supplements are the biggest concern of poison control experts, consumer protection groups, and health-care providers. Iron-containing supplements are the leading cause of pediatric poisoning deaths for children under 6 in the United States. According to the American Association of Poison Control Centers, from 1986 to 1994, 38 children between the ages of 9 months and 3 years died from accidentally swallowing iron-containing products. The number of pills consumed ranged from as few as 5 to as many as 98.¹

Using a technique often seen in interest-catching introductions, the author of this example strengthens the reader's interest by immediately following her opening with a few eye-catching facts. Interesting-catching introductions are used in brochures, advertisements, and magazine and newspaper articles. You will rarely see an interest-catching introduction in business reports or professional journals. If you do, it will usually be a short one.

Purpose Your statement of purpose tells the reader *why* you are writing about the subject you have announced. By so doing, you also answer the reader's question "Should I read this paper or not?" For example, a Department of Labor report on job hunting includes this sentence: "Whether you are involuntarily unemployed, changing jobs, or looking for your first job, this Guide is designed to help you negotiate the many phases of the job search process."² Readers who have no reason to be interested in such a discussion will know there is no purpose in reading further.

Another way to understand the purpose statement is to realize that it often deals with the *significance* of the subject. Writers who had human-computer interaction as their subject announced their purpose this way:

Why take yet another look at the way humans and computers interact? Because an important part of human-computer interaction is the way that people feel about themselves and the computer's actions both during the interaction and after it is completed. These feelings affect their decision to buy or use a program, their attitude toward computing, and their effectiveness in future interactions. People may be happy and comfortable

with the dialog, or they may not be. They may feel belittled and bewildered, or they may feel they are leading along a plodding machine that does not serve them well. Parallels can be drawn between human–computer dialogs and the dialogs that people have with each other.³

Scope The statement of scope further qualifies the subject. It announces how broad the treatment of the subject will be. Often it indicates the level of competence expected in the reader for whom the paper is designed. For example, a student who wrote “In this report I explain the application of superconductivity in electric power systems in a manner suitable for college undergraduates” declared his scope as well as his purpose. He is limiting the scope to superconductivity in electric power systems and stating that his target audience is not composed of high school students or graduate physicists but of college undergraduates.

Plan of Development In a plan of development, you forecast your report’s organization and content. The principle of psychological reinforcement is at work here. If you tell your readers what you are going to cover, they will be more ready to comprehend as they read along. The following, taken from the introduction to a student’s paper on enriching flour with iron, is a good example of a plan of development:

This study presents a basic introduction to three major areas of concern about iron enrichment: (1) which form of iron is most suitable; (2) potential health risks from overdoses of iron, such as cardiovascular disease, hemochromatosis, and the masking of certain disorders; and (3) ignorance of the definitions, extent, and causes of iron deficiency.

You need not necessarily think of the announcement of subject, purpose, scope, and plan of development as four separate steps. Often, subject and purpose or scope and plan of development can be combined. In a short paper, perhaps two or three sentences might cover all four points, as in this example:

Subject

Purpose, scope, and plan of development

Although breast cancer has a stressful impact on women of all ages, there is a growing concern that young women with breast cancer and their family members may be particularly vulnerable to the negative effects of the illness. However, little research has addressed the concerns or the impact of the illness on younger women’s lives and the lives of their family members. Utilizing a developmental perspective, this article describes the emotional impact of breast cancer on young women, their spouses, children, and the marital relationship; it concludes with directions for future research.⁴

Also, introductions to specialized reports may have peculiarities of their own.

These are discussed in Part III, Applications.

Theoretical or Historical Background When theoretical or historical background is not too lengthy, you can incorporate it into your introduction. In the following excellent introduction, the writer begins with background, makes his subject and purpose clear, and closes with a paragraph that states his scope and plan of development:

In recent years, two questions have received a good deal of attention in the field of business and technical writing, or professional communication, as I will call it. One question is old and one new, but both are closely related—at least to professional communication teachers and researchers who are trained in the profession of literary criticism. The first question is as old as technical and business writing courses, dating back to the 1910s: To what extent, if any, should business and technical writing courses serve the pragmatic needs of business and industry, and to what extent, if any, should those courses teach the concerns of literary studies? The second question is relatively new, but it has received a great deal of attention in recent years: What is the responsibility, if any, of the instructor of these courses to teach ethics? The two questions are related in complex ways because, for some teachers in the field of professional communication, putting business and technical writing courses at the service of business and industry is viewed as ethically suspect, and there have been a number of articles recently that argue or suggest that business and technical writing courses for students majoring in science, technology, and business should ask those students to critique the ethical basis of science, business, and industry from what is essentially the perspective of literary studies, as we shall see.

Let me say from the outset that I believe that all teachers—and all professions and all institutions and indeed all human beings—have a responsibility to promote ethical behavior. So, too, every profession, institution, and human being ought to engage in critical reflection at times. The question is not whether teachers, courses, disciplines, professions, and institutions should promote ethical behavior but how, when, and for what purposes they should be promoted. These are far more complex questions, and they cannot be answered without instructors considering their methods, timing, and motives for raising ethical issues. In this article, I want to point out some potential difficulties—which are essentially ethical difficulties—in literature-trained faculty teaching ethics in professional communication courses, and I will warn against a too-hasty—uncritical, if you will—pursuit of certain kinds of critical reflection as a goal of these courses.

First, I will examine the historical and an institutional context of my two central questions and look at two recent answers to them. Then I will

turn to an obscure chapter in the history of business and technical communication—the teaching of “engineering publicity” at Massachusetts Institute of Technology (MIT) in the early 1920s—to see the unusual answer of one institution to these questions at a crucial point in its history. Finally, I will suggest why I believe that answer is worth serious consideration by those of us involved in writing instruction and curricular planning for students who will enter business and professional communities, both outside and within academia (for we must remember that academics—even those in literary studies—are professionals as well).⁵

If the background material is extensive, however, it more properly becomes part of the body of your paper.

Discussion

The discussion will be the longest section of your report. Your purpose and your content will largely determine the form of this section. Therefore, we can prescribe no set form for it. In presenting and discussing your information, you will use one or more of the techniques described in Chapters 9 and 10 or the special techniques described in Part III, Applications. In addition to your text, you will probably also use headings (see pages 257–264) and visuals such as graphs, tables, and illustrations.

When thinking about your discussion, remember that almost every technical report answers a question or questions: What is the best method of desalination to create a water supply at an overseas military base? How are substances created in a cell’s cytoplasm carried through a cell’s membranes? What is the nature of life on the ocean floor? How does single parenthood affect the children in the family? Ask and answer the reporter’s old standbys: Who? What? When? Where? Why? How? Use the always important “so-what?” to explore the implications of your information. However you approach your discussion, project yourself into the minds of your readers. What questions do they need answered to understand your discussion? What details do they need to follow your argument? You will find that you must walk a narrow line between too little detail and too much.

Too little detail is really not measured in bulk but in missing links in your chain of discussion. You must supply enough detail to lead the reader up to your level of competence. You are most likely to leave out crucial details on some basic point that, because of your familiarity with the subject, you assume to be common knowledge. If in doubt about the reader’s competence at any point, take the time to define and explain.

Many reasons exist for too much detail, and almost all stem from writers’ inability to edit their own work. When you realize that something is irrelevant to your discussion, discard it. It hurts, but the best writers will often throw away

thousands of words, representing hours or even days of work.

You must always ask yourself questions like these: Does this information have significance, directly or indirectly, for the subject I am explaining or for the question I am answering? Does this information move the discussion forward? Does it enhance the credibility of the report? Does it support my conclusions? If you don't have a yes answer to one or more of these questions, the information has no place in the report, no matter how many hours of research it cost you.

Ending

Depending on what sort of paper you have written, your ending can be a summary, a set of conclusions, a set of recommendations, or a graceful exit from the paper. Frequently, you'll need some combination of these. We'll look at the four endings and at some of the possible combinations.

It's also possible in reports written with executives as the primary audience that the "ending" may actually be placed at the front of the report. Executives are more interested in summaries, conclusions, and recommendations than they are in the details of a report. Thus, many writers in business and government move these elements to the front of their reports. They may be presented in separate sections labeled Summary, Conclusions, and Recommendations or combined into an executive summary (see page 622). In either case, the body of the report may be labeled Discussion or even Annexes.

Summary Many technical papers are not argumentative. They simply present a body of information that the reader needs or will find interesting. Frequently, such papers end with summaries. In a summary, you condense for your readers what you have just told them in the discussion. Good summaries are difficult to write. At one extreme, they may fail to provide adequate information; at the other, they may be too detailed. You must pare the summary down to material essential to your purpose. This can be a slippery business.

Suppose your purpose is to explore the way the human digestive system absorbs iron from food. In your discussion you describe an experiment conducted with Venezuelan workers that followed isotopically labeled iron through their digestive systems. To enhance the credibility of the information presented, you include some details about the experiment. You report the conclusion that vegetarian diets decreased iron absorption.

How much of this should you put in your summary? Given your purpose, the location and methodology of the experiment would not be suitable material for the summary. You would simply report that in one experiment vegetarian diets were shown to decrease iron absorption.

In general, each major point of the discussion should be covered in the

summary. Sometimes you may wish to number the points for clarity. The following, from a student's paper of about 2,500 words, is an excellent summary:

The exploding wire is a simple-to-perform yet very complex scientific phenomenon. The course of any explosion depends not only on the material and shape of the wire but also on the electrical parameters of the circuit. An explosion consists primarily of three phases:

1. The current builds up and the wire explodes.
2. Current flows during the dwell period.
3. "Post-dwell conduction" begins with the reignition caused by impact ionization.

These phases may be run together by varying the circuit parameters.

The exploding wire has found many uses: it is a tool in performing other research, a source of light and heat for practical scientific application, and a source of shock waves for industrial use.

Summaries should be concise, and they should introduce no material that has not been covered in the report. Read your discussion over, noting your main generalizations and your topic sentences. Blend these together into a paragraph or two. Sometimes you will represent a sentence from the discussion with a sentence in the summary. At other times you will shorten such sentences to phrases or clauses. The last sentence in the foregoing example represents a summary of four sentences from the writer's discussion. The four sentences themselves were the topic sentences from four separate paragraphs.

If you are using a word processor, you might do well to copy the material you are summarizing and then go through it, eliminating unwanted material to make your summary. Such a technique may be easier and more accurate than retyping the material.

Conclusions Some technical papers work toward a conclusion. They ask a question—such as "Are nuclear power plants safe?"—present a set of facts relevant to answering the question, and end by stating a conclusion—Yes, No, or, sometimes, Maybe. The entire paper aims squarely at the final conclusion. In such a paper, you argue inductively and deductively. You bring up opposing arguments and show their weak points. At the end of the paper, you must present your conclusions. Conclusions are the inferences drawn from the factual evidence of the report. They are the final link in your chain of reasoning. In simplest terms, the relationship of fact to conclusion goes something like this:

Facts

Car A averages 25 miles per gallon.
Car B averages 40 miles per gallon.

Conclusion

On the basis of miles per gallon,
Car B is preferable.

Because we presented a simple case, our conclusion was not difficult to arrive at. But even more complicated problems present the same relationship of fact to inference.

In working your way toward a major conclusion, you ordinarily have to work your way through a series of conclusions. In answering the question about nuclear power plant safety, you would have to answer many subquestions concerning such things as security of the radioactive materials used, adequate control of the nuclear reaction, and safe disposal of nuclear wastes. The answer to each subquestion is a conclusion. You may present these conclusions in the body of the report, but it's usually a good idea to also draw them all together at the end of the report to support the major conclusion.

Be sure that your conclusion or conclusions relate to the investigation or objectives proposed in the introduction. For example, the introduction to a tree planting experiment stated the following objective:

This trial was established to determine whether a small volume of water applied after planting would have a beneficial impact on plant survival and growth.

The paper's conclusion spoke directly to the stated objective:

Application of even a small amount of water to seedlings immediately after planting has a profound beneficial impact on both survival and early resumption of growth after planting. The marginal increase in cost of applying water to seedlings immediately after planting should be easily justified in terms of improved seedling establishment and subsequent growth.⁶

In longer papers, or when dealing with a controversial or complex subject, you would be wise to precede your conclusions with a summary of your facts. By doing so, you reinforce in your reader's mind the strength and organization of your argument. In any event, make sure your conclusions are based firmly upon evidence that has been presented in your report. Few readers of professional reports will take seriously conclusions based upon empty, airy arguments. Conclusions are frequently followed by recommendations.

Recommendations A conclusion is an inference. A recommendation is the statement that some action be taken or not taken. The recommendation is based on the conclusions and is the last step in the process. You conclude that Brand X bread is cheaper per pound than Brand Y and just as nutritious and tasty. Your final conclusion, therefore, is that Brand X is a better buy. Your recommendation is "Buy Brand X."

Many reports—such as feasibility reports, environmental impact statements, and research reports concerning the safety of certain foods or chemicals—are decision reports that end with a recommendation. For example, we are all familiar with the government recommendations that have removed certain artificial sweeteners from the market and that have placed warnings on cigarette packages. These recommendations were all originally stated at the end of reports looking into these matters.

Recommendations are simply stated. They follow the conclusions, often in a separate section, and look something like this:

Based upon the conclusions reached, we recommend that our company

- Not increase the present level of iron enrichment in our flour.
- Support research into methods of curtailing rancidity in flour containing wheat germ.

Frequently, you may offer a major recommendation followed by additional implementing recommendations, as in the following:

Major recommendation

We recommend that the Department of Transportation build a new bridge across the St. Croix River at a point approximately three miles north of the present bridge at Hastings.

Implementing recommendations

- The department's location engineers should begin an immediate investigation to decide the exact bridge location.
- Once the location is pinpointed, the department's right-of-way section should purchase the necessary land for the approaches to the bridge.

You need not support your recommendations when you state them. You should have already done that thoroughly in the report and in the conclusions leading up to the recommendations. It's likely, of course, that a full-scale report will contain a summary, conclusions, and recommendations.

Graceful Close A short, simple, nonargumentative paper often requires nothing more than a graceful exit. As you would not end a conversation by turning on your heel and stalking off without a "good-bye" or a "see you later" to cover your exit, you do not end a paper without some sort of close. In a short informational paper that has not reached a decision, the facts should be still clear in the readers' minds at the end, and they will not need a summary. One sentence, such as the following, which might end a short speculative paper on superconductivity, will probably suffice:

Because superconductivity seems to have numerous uses, it cannot fail to

receive increasing scientific attention in the years ahead.

Sometimes, even a long, involved paper can profit from a graceful close. In the next example, the author of the introduction on pages 627–628 ends his scholarly paper with a reference to other work that supports his own:

Teachers of professional communication have a unique interdisciplinary perspective and thus a unique responsibility. They can—indeed they must—daily negotiate the distance between “the two cultures.” C. P. Snow, who coined the phrase, was both a physicist and a man of letters, and it is salutary to recall that his famous essay (perhaps more often cited than read) is not an ethical indictment of the ethical position of scientific “culture,” but just the opposite. Writing to his fellow literati, he says, “the greatest enrichment the scientific culture could give us is ... a moral one.” Snow praises scientific “culture” for its commitment to human improvement manifested in active involvement. Snow takes to task the other culture, the “mainly literary” one, for an ethical complacency “made up of defeat, self-indulgence, and moral vanity,” a complacency to which “the scientific culture is almost totally immune.” And he concludes, “It is that kind of moral health of the scientists which, in the last few years, the rest of us have needed most; and of which, because the two cultures scarcely touch, we have been most deprived” (414). Both cultures have changed much in the four decades since Snow published his essay, but perhaps each culture still has much to learn from the other, even about ethics.⁷

Combination Endings We have treated summaries, conclusions, and recommendations separately. Indeed, a full-scale report leading to a recommendation will often contain in sequence separate sections labeled Summary, Conclusions, and Recommendations. When such is the case, the summary will often be restricted to a condensation of the factual data offered in the body. The implications of the data will be presented in the conclusions, and the action to be taken in the recommendations.

However, in many reports, the major elements of factual summary, conclusions, and recommendations may be combined. A combination of summary, conclusions, and recommendations placed at the front of a report for a technical audience will probably be labeled an abstract. It will be, in fact, what we describe on pages 618–622: an informative abstract. The same combination located at the end of a report for any audience would probably be called a summary. A summary written specifically for an executive audience and located at the front of the report will be an executive summary (see Figure B-13).

It’s unfortunate that there is a slight confusion of terms when these elements are used in different ways. Don’t let the confusion in terminology confuse the essence of what is involved here. In all but the simplest reports, you

must draw things together for your readers. You must condense and highlight your significant data and present any conclusions and recommendations you have. Notice how this summary of a scientific research report smoothly combines all these elements:

Summary

Summary

In many turtles the hatchling's sex is determined by the incubation temperature of the egg, warm temperatures causing femaleness and cool temperatures maleness. Consequently, the population sex ratio depends upon the interaction of (i) environmental temperature, (ii) maternal choice of nest site, and (iii) embryonic control of sex determination. If environmental temperature differs between populations, then sex ratio selection is expected to adjust either maternal behavior or embryonic temperature-sensitivity to yield nearly the same sex ratio in the different populations.

Conclusion

Recommendation

To test this hypothesis in part, we have compared sex determining temperatures among embryos of emydid turtles in the northern and southern U.S. We predicted that embryos of southern populations should develop as male at higher temperatures than those of northern populations. The data offer no support for this prediction among the many possible comparisons between northern and southern species. The data actually refute the prediction in both of the North-South intraspecific comparisons. Further study is needed, in particular, of nest temperatures in the different populations.⁸

APPENDIXES

Appendixes, as the name implies, are materials appended to a report. They may be materials important as background information or needed to lend the report credibility. They will not in most cases be necessary to meet the major purpose of the report or the major needs of the audience. For example, if you are describing research for an executive audience, they will likely be more interested in your results and conclusions than in your research methodology. If your audience consists totally of executives, you might include only a barebones discussion of your methodology in your report.

But suppose you have a primary audience of executives and a secondary audience of experts. You could satisfy both audiences by placing a detailed discussion of your methodology in an appendix—out of the executives' way but readily accessible for the experts. Like most decisions in technical writing, what goes into the body of a report, what goes into an appendix, and what is eliminated altogether are determined by your audience and purpose.

During the final stages of arranging your report, determine whether materials such as the following should be placed in appendixes:

- Case histories
- Supporting illustrations
- Detailed data
- Transcriptions of dialogue
- Intermediate steps in mathematical computation
- Copies of letters, announcements, and leaflets mentioned in the report
- Samples, exhibits, photographs, and supplementary tables and figures
- Extended analyses
- Lists of personnel
- Suggested collateral reading
- Anything else that is not essential to the sense of the main report

Before you place anything in an appendix, consider the effect on the report. Be certain that shifting an item to an appendix does not undermine your purpose or prevent the reader from understanding major points of the report.

PLANNING AND REVISION CHECKLISTS

You will find the planning and revision checklists that follow Chapter 2, Composing, and Chapter 4, Writing for Your Readers, valuable in planning and revising any presentation of technical information. The following questions specifically apply to the elements of reports. They summarize the key points in this chapter and provide a checklist for planning and revising.

Planning

- Which does your situation call for, a letter of transmittal or a preface?
- Will you bind your report? If so, did you leave extra left-hand margin?
- Does your situation call for any information on your title page beyond the basic items: name of author, name of person or organization receiving the report, title of report, and date of submission?
- Have you used a system of headings that need to be repeated in your table of contents?
- Have you used a numbering system that needs to be repeated in your table of contents?
- Do you have enough illustrations to warrant a list of illustrations?
- Have you used symbols, abbreviations, acronyms, or terms that some of your readers will not know? Do you need a list of symbols or a glossary?
- Does your report require an abstract? If so, should it be informative or descriptive or both?
- Is your primary audience an executive one? Does the length of your report require an executive summary?
- What will be the major questions in the executives' minds as they read your

report? Have you planned to answer these questions in the executive summary?

- Are your subject, purpose, scope, and plan of development clear enough that you can state them in your introduction?
- Do you need an interest-catching fact in your introduction?
- Do you need definitions or theoretical or historical background in your introduction?
- What information do your readers really need and want in your discussion? What questions will they have? What details do they want?
- What kind of ending do you need: summary, conclusion, recommendations, graceful exit, a combination of these?
- Do you have an executive audience? Should your “ending” come at the beginning of the report?
- Do you have material that would be better presented in an appendix rather than the discussion? Should you leave it out altogether?
- Do you have material you need to document—for example, direct quotes, research data and theories, illustrations—using either notes or author-date documentation? (See Documentation in this appendix.)
- Do you plan to publish your report? Does it contain material protected by copyright law? (See Copyright under Documentation in this appendix.) If so, begin seeking permission to use the material as early as possible.

Revision

- Does your letter of transmittal contain clear statements of transmittal, the occasion for the report, and subject and purpose of the report? Do you need any other elements, such as a distribution list?
- Does your preface contain clear statements of the occasion for the report and the subject and purpose of the report? Do you need any other elements, such as acknowledgments?
- Is your cover suitable for the occasion of the report? Is it labeled with all the elements necessary to your situation?
- Is your title page well designed? If you have used a word processor, have you kept your design simple? Does your title page contain all the elements required by your situation? Does your title describe your report adequately?
- Have you an effective design for your table of contents? Do the headings in your table of contents exactly match their counterparts in the report? Are the page numbers correct?
- Do you have a simple but clear numbering system for your illustrations? Do the titles in your list of illustrations exactly match the titles in the report? Are the page numbers correct?
- If needed, do you have a glossary and a list of symbols? Have you written your glossary definitions correctly?
- Are your abstracts written in the proper impersonal style? Does your informative abstract cover all the major points of your report? Have you avoided excessive detail? Does your abstract conform to the length

requirements set for you?

- Does the executive summary answer the questions your executive audience will have? Have you included clear statements of your conclusions and recommendations? Have you held the length to one double-spaced page?
- Does the introduction clearly forecast your subject, purpose, scope, and plan of development? If they are needed, does the introduction contain definitions or theoretical or historical background?
- Does the discussion answer all the questions you set out to answer? Does it contain any material irrelevant to your subject and purpose?
- Does the ending draw things together for the readers? Does it condense and highlight your significant data? Does it present your conclusions and recommendations? Should the “ending” come at the front of the report?
- Does the appendix material belong in the appendix? If any material in an appendix is a key to a major point, move it to the discussion. If it seems irrelevant to the report, remove it altogether.
- Have you documented everything that needs to be documented in your report? Have you documented accurately? Do your notes or citations follow the format rules required in your situation? (See Documentation in this appendix.)
- If you plan to publish your report, do you have permission to use any copyrighted material it contains? (See Copyright Law under Documentation in this appendix.)

LETTER AND MEMORANDUM FORMAT

Heading

Date Line

Inside Address

Attention Line

Reference Line

Subject Line

Salutation

Body

Complimentary Close

Signature Block

End Notations

 Identification

 Enclosure

 Copy

Continuation Page

Almost any organization you join will have rules about its letter and memo formats. Either you will have a secretary to do your correspondence or you will have to learn the rules for yourself. In this section, we give you only enough rules and illustrations to allow you to turn out a good-looking, correct, and acceptable business letter or memo on your own. If for no other reason, you will find this a

necessary skill when you go job hunting.

Figures B-14 and B-15 illustrate the block and semiblock styles on nonletterhead stationery. Figures B-16 and B-17 illustrate the block style and the simplified style on letterhead stationery.

The chief difference between memos and letters is format. Figure B-18 illustrates a typical memo format. Figure B-19 illustrates the heading used for the continuation pages of a letter or a memo. We have indicated in these samples the spacing, margins, and punctuation you should use. In the text that follows, we discuss briefly the different styles and then give you some of the basic rules you should know about the parts of a letter or memo. Before continuing with the text, look at Figures B-14–B-19. Particularly observe the spacing, placement, and punctuation of the various parts of letters and memos.

For most business letters you may have to write, any of the styles shown would be acceptable. For letters of inquiry or complaint, which typically do not address anyone specific in a company, we suggest the simplified style. For letters of application, we suggest the block or semiblock style without a subject line. Some people still find the simplified letter, without the conventional salutation and complimentary close, a bit too brusque. Unless you know for certain that the company you are applying to prefers the simplified form, do not take a chance with it.

If you are doing your own word processing, we suggest the block style as the best all-around style. It includes all the conventional parts of a letter, but everything is lined up along the left-hand margin. You do not have to bother with tab settings and other complications. Some people feel that a block letter looks a bit lopsided, but it's a common style that no one will object to. No matter which style you choose, leave generous margins, from an inch to two inches, all around, and balance the first page of the letter vertically on the page. Because letters look more inviting with lots of white space, you should seldom allow paragraphs to run more than seven or eight lines.

HEADING

When you do not have letterhead stationery, you will have to furnish your heading. In the semiblock style, the heading is approximately flush right. In the other formats shown, the heading is flush left. Do not abbreviate words such as *street* or *road*. Write them out in full. You may abbreviate the names of states and provinces. Figure B-20 lists the two-letter abbreviations for states of the United States and provinces of Canada.

If you have business letterheads made up, have them printed on good quality white bond in a simple style. With word processing and a quality laser printer, it's possible to print your own letterheads. We have two cautions,

however, if you choose to do so. First, keep in mind that only the most expensive printers will turn out printing as crisp and sharp as commercial printing will. Second, be careful not to design a too-elaborate letterhead. Keep it simple, in a standard design.

DATE LINE

In a letter without a printed letterhead, the date line is part of your heading in the block, semiblock, and simplified styles. When you use printed letterhead, the date line is flush left in the block and simplified styles and approximately flush right in semiblock style. Place it three to six spaces below the printed letterhead, to help balance the letter vertically on the page. Write the date out fully, either as June 3, 20XX or 3 June 20XX. Do not abbreviate the month or use ordinal numbers or their abbreviations (e.g., 1st, 2nd) for the date.

INSIDE ADDRESS

The inside address is placed flush left in all the formats shown. Make sure the inside address is complete. Follow exactly the form used by the person or company you are writing to. If your correspondent abbreviates *Company* as *Co.*, you should also. Use *S. Edward Smith* rather than *Samuel E. Smith* if that is the way Smith wants it. Do use courtesy titles such as *Mr.*, *Dr.*, and *Colonel* before the name. The usual abbreviations used are *Mr.*, *Ms.*, and *Dr.* Place one-word titles such as *Manager* or *Superintendent* immediately after the name. When a title is longer than one word, place it on the next line by itself. Do not put a title after the name that means the same thing as a courtesy title. For example, don't write *Dr. Marlene E. Smith, Ph.D.*

ATTENTION LINE

On occasion you may wish to write to an organizational address but also draw your letter to the attention of some individual. It's a way of saying, in effect, "Anyone there can answer this letter, but if Mr. Smith is there he is the best person to handle the matter." When you use an attention line, type it flush left two spaces below the inside address. Capitalize only the A. You can use a colon or not between *Attention* and the name:

Attention Mr. Frank Rookard

or

Attention: Mr. Frank Rookard

REFERENCE LINE

Use the reference line to refer to the letter or memo you are answering. For example,

REFERENCE: YOUR LETTER OF MAY 14, 2001

Place the reference line heading (sometimes abbreviated *RE.* or *REF.*) flush left in all styles. Type both the heading and the reference line itself in capital letters. Generally, you will follow the heading with a colon, although sometimes the colon is omitted. A letter may have both a reference line and a subject line, or the two may be combined, as in

REFERENCE: YOUR LETTER OF 12 JULY 2001

APPLICATION FOR A MORTGAGE AT 452 LITTLE COMFORT ROAD

SUBJECT LINE

Place the subject line flush left in all styles. In the block and semiblock styles, it is usually preceded by the heading **SUBJECT**, though sometimes you will see a subject line with no heading. Generally, the heading is followed by a colon, but sometimes the colon will be omitted. Type both the heading and the subject line itself in capital letters. In the simplified style, omit the heading and type the subject line in all capital letters.

If you are answering a letter that has a subject line, repeat the subject line from the original letter. If you are making up your own subject line, be sure it's complete enough to be useful. If, for example, you're reporting progress on an architectural design for a building at 452 Little Comfort Road, don't write merely 452 LITTLE COMFORT ROAD. Rather, write PROGRESS REPORT ON THE ARCHITECTURAL DESIGN FOR THE BUILDING AT 452 LITTLE COMFORT ROAD.

Both subject lines and reference lines get your letters or memos off to good starts. They allow you to avoid cliché openers like "With regard to your letter of April 5, 2001."

SALUTATION

Place the salutation flush left. Convention still calls for the use of *Dear*. Always use a name in the salutation when one is available to use. When you use a name, be sure it's in the inside address as well. Also, use the same courtesy title as in the inside address, such as *Dear Dr. Sibley* or *Dear Ms. McCarthy*. You may use a first-name salutation, *Dear Samantha*, when you are on friendly terms with the recipient. Follow the salutation with a colon.

What do you do when you are writing a company blindly and have no

specific name to use? Some people use Dear followed by the name of the department being written to, such as *Dear Customer Relations Department*. Perhaps the best solution is to choose the simplified style, which uses no salutation.

In any case, do not begin letters with *Dear Person*, which is distasteful to many; *Dear Sir*, which is sexist; or *To Whom It May Concern*, which is old-fashioned.

BODY

In word processing the body of an average-length letter or memo, use single spacing between the lines and double spacing between the paragraphs. In a particularly short letter, double-space throughout the body and use five-space indentations to mark the first lines of paragraphs. Avoid splitting words between lines. Never split a date or a person's name between two lines.

COMPLIMENTARY CLOSE

In the block style, place the complimentary close flush left. In the semiblock style, align the close with the heading (or with the date line in a letterhead letter). Settle for a simple close, such as *Sincerely yours* or *Very truly yours*. Capitalize only the first letter of the close, and place a comma after the close.

SIGNATURE BLOCK

Place your name four spaces below the complimentary close in the block and semiblock styles, five spaces below the last line of the body in the simplified style. Use your first name, middle initial, and last name or, if you prefer, your first initial and middle name, as in *M. Lillian Smith*. We don't recommend the use of initials only, as in *M. L. Smith*, because this form puts your correspondents at a disadvantage. People who don't know you will not know whether to address you as *Dear Mr.* or *Dear Ms.*

If you have a title, place it below your name. Sign your name immediately above your name. Your signature and your printed name should agree. In memos, it's customary to initial next to your printed name in the From line.

END NOTATIONS

Various end notations may be placed at the bottom of a letter or memo, always flush left. The most common ones indicate identification, enclosure, and carbon copy.

Identification

The notation for identification is composed of the writer's initials in capital letters and the typist's initials in lowercase:

DHC: 1nh

Enclosure

The enclosure line indicates that additional material has been enclosed with the letter or memo. You may use several forms:

Enclosure

Enclosures (2)

Encl: Employment application blank

Copy

The copy line informs the recipient of a letter or memo that you have sent a copy of the letter to someone else. In form, the copy notation looks like this:

cc: Ms. Elaine Mills

See Figures B-14–B-18 for proper spacing and sequence of these three end notations.

Continuation Page

Use a continuation page or pages when you can't fit your letter or memo onto one page. Do not use letterhead stationery for a continuation page. Use plain bond of the same quality and color as the first page.

As shown in Figure B-19, the continuation page is headed by three items: page number, name of addressee, and date. When you have a continuation page, the last paragraph on the preceding page should contain at least two lines. The last continuation page must have at least three lines of text to accompany the complimentary close and the signature block.

DOCUMENTATION

General Rules

Notes

The Note System
Model Notes

Author–Date Documentation: *The Chicago Manual of Style*
Works Cited
Parenthetical Citation

Author–Date Documentation: American Psychological
Association
Reference List
Parenthetical Citation

Internet Documentation
Model Notes and Citations
Parenthetical Reference

Figures

Copyright Law

Different documentation systems are in use from college to college, journal to journal, company to company, discipline to discipline. Therefore, we cannot claim universal application for the instructions that follow. Use them barring conflicting instructions from your instructor, college, employer, or the stylebook of the journal or magazine in which you hope to publish.

Before we go into the mechanics of documentation, it might be wise to discuss why and when you need to document.

First of all, documenting fulfills your moral obligation to give credit where credit is due. It lets your readers know who was the originator of an idea or expression and where his or her work is found. Second, systematic documentation makes it easy for your readers to research your subject further.

When do you document? Established practice calls for you to give credit when you borrow the following:

- Direct quotes
- Research data and theories
- Illustrations, such as tables, graphs, and photographs.

You do not need to document general information or common knowledge. For example, even if you referred to a technical dictionary to find that creatinine's more formal name is methyglycocyamidine, you would not be obligated to show the source of this information. It is general information, readily found in many sources. If on the other hand you want to include in your paper an opinion that the cosmos is laced with strands of highly concentrated mass energy called *strings*, you would need to document the source of this opinion.

In general, give credit where credit is due, but do not clutter your pages with references to information readily found in many sources. If in doubt as to whether to document or not, play it safe and document.

To give you a wide familiarity with different documentation systems, we explain three major systems of documentation. The first uses notes—that is, footnotes or endnotes—and is based on the note system in *The Chicago Manual of Style*.⁹ Notes are often used for documenting books and business reports. It is the system used throughout this book.

The second system uses author–date parenthetical citations keyed to a list of works cited and is based on the guidelines set out in *The Chicago Manual of Style*.¹⁰ This system, or variations of it, is widely used in the physical and natural sciences.

The third system also uses parenthetical citations keyed to a list of works, but follows the system described in the *Publication Manual of the American Psychological Association*.¹¹ It is a system widely used in the social sciences.

As this book is being written, neither manual we have cited provides a way of documenting all the forms of information that can be taken from the Internet. No doubt they will in the future, but in the meantime writers are faced with the problem of how to document such sources. To help until the major systems catch up with these new demands, we provide a section on how to document Internet sources, based on systems offered on the Internet itself.¹² These systems are still works in progress and subject to further change.

Some general rules apply in the three major systems. We cover these rules first and then, in order, the note system, the author–date parenthetical systems, Internet documentation, and figure documentation.

GENERAL RULES

The rules that follow apply whether you are using the note system or an author–date parenthetical system.

- You may use a short form of the publisher’s name: for example, Wiley for John Wiley & Sons or GPO for the Government Printing Office. Be consistent throughout your notes or citations, however.
- When a city of publication is not well known, include an abbreviated form for the state, province, or country in your note or citation. For states and provinces, use postal abbreviations: for example NY for New York and BC for British Columbia. (A list of state and province abbreviations is given in the preceding section; see Figure B-20) For countries, use the abbreviations that can be found in most college dictionaries: for example, Arg. for Argentina.

- When information on pagination, publisher, or date is missing in your source, at the point where you would put that information, put: n. pag. for no pagination, n.p. for no place of publication or no publisher, and n.d. for no date.

NOTES

Because of the ease of making notes with word processing, many organizations and companies use a note system. In this section we first explain the note system of documentation and then provide a series of model notes that you can use as guides in constructing your notes.

The Note System

Notes may be (1) displayed at the bottom of the page on which the documented material appears or (2) gathered together at the end of the report under the heading Notes. In the first method, the notes are called footnotes and in the second, *endnotes*. Footnotes are illustrated in Figure B-21, endnotes in Figure B-22. Endnotes are much more usual than footnotes in student and business reports and in journal articles. We use them in this book; see our Chapter Notes on pages 683–688.

Whether using footnotes or endnotes, number your notes in sequence through your paper. If your paper is divided into chapters, like this book, number your notes in sequence through each chapter. Except for spacing, the note form is the same for both footnotes and endnotes. In footnotes, single-space each note and double-space between notes. In endnotes, double-space the notes themselves and between notes. (If, however, you are preparing a manuscript for publication, double-space everything.)

In both footnotes and endnotes, the note number is indicated in the text by a superscript number, that is, a number placed above the line of type, as you can see in the many note numbers we give in this book and in Figure B-21. Place the number in the text where it is relevant and where it disrupts the text the least. Generally, you should place the note at the end of the grammatical unit—for example, sentence or clause—that contains the material you are documenting.

Notes, whether footnotes or endnotes, appear in the order that the superscript note numbers occur in the paper. For both footnotes and endnotes, indent three spaces from the left margin, place the number on line, and follow it with a period. Begin the body of the note one space to the right of the period. If the note is longer than one line, begin subsequent lines at the left margin. Figures B-21 and B-22 illustrate these details. Word processing can make placing and numbering footnotes and endnotes quite easy. Most programs will number the notes automatically. Type the note at the place in the text where it is relevant. If you have specified endnotes, the program saves the note with the

other endnotes and puts them all after the text. If you have specified footnotes, the program puts the note on the bottom of the page, adjusting the rest of the text for it. If you move the relevant text to another place later, the note moves with it. When you add or delete a note, the program renumbers all the other notes.

Model Notes

To construct your notes, consult the sample notes in Figures B-21 and B-22 and the examples that follow; we have annotated these figures to draw your attention to certain distinctive note features, such as italics, punctuation, and spacing. We categorize the model notes under the headings of **Books, Periodicals, Other,** and **Subsequent References,** and provide an example of most of the notes you are likely to need in school or business.

Books The following examples illustrate various forms of book notes.

One author

1. Robert A. Day, *Scientific English: A Guide for Scientists and Other Professionals* (Phoenix, AZ: Oryx, 1992), 13–14.

Page numbers in notes are to the actual pages cited. When page numbers are two digits, use both digits in the second number, thus, 13–14. When page numbers are three digits or more, use only the last two digits in the second number, thus, 324–26, 1034–39.

Two or more authors

2. Edward von Koenigseck, James N. Irvin, and Sharon C. Irvin. *Technical Writing for Private Industry: The A-to-Z of O & M Manuals* (Malabar, FL: Krieger, 1991), 22–24.

An anthology

3. Linda P. Driskill, June Ferrill, and Marda Nicholson Steffey, eds., *Business and Managerial Communication: New Perspectives* (New York: Harcourt Brace Jovanovich, 1992), 112–15.

Use the abbreviation ed. for one editor, eds., for two or more when, as in item 3, the book's editors are listed as authors. When the authors are contributors to an edited volume, as in item 4, use *ed.*, meaning "edited by," for one editor or more than one.

An essay in an anthology

4. Lee Odell, Dixie Goswami, Anne Herrington, and Doris Quick, "Studying Writing in Non-Academic Settings," in *New Essays in Technical and Scientific Communication: Research, Theory, Practice*, ed. Paul V. Anderson, R. John Brockmann, and Carolyn R. Miller (Farmingdale, NY: Baywood, 1983), 27–28.

Second or subsequent edition

5. Michael H. Markel, *Technical Writing: Situations and Strategies*, 3rd ed. (New York: St. Martin's, 1992), 17–18.

Article in reference book

6. "Petrochemical," *Columbia Encyclopedia*, 2001.

When a reference work is well known, you need cite only the name of the article, the name of the reference work, and the date of publication. If the work is arranged alphabetically, do not cite page numbers.

For less well-known reference works, give complete information. Cite the author of the article if known: otherwise, begin with the name of the article.

7. "Perpetual Calendar, 1775–2076," *The New York Public Library Desk Reference*, ed. Paul Fargis and Sheree Bykofsky (New York: Webster's New World, 1989), 9–13.

A pamphlet

8. *Cataract: Clouding the Lens of Sight* (San Francisco: American Academy of Ophthalmology, 1989), 1–2.

If the author of a pamphlet is known, give complete information in the usual manner.

Government or corporate publication

9. National Aeronautics and Space Administration, *Voyager at Neptune: 1989* (Washington, DC: GPO, 1989), 16.

Treat publications for which the "author" is a government agency or a division within a company much as you would any book, as shown in item 9. If you are sure your readers will understand that the government entity you cite is part of the federal government, you may omit the U.S. before its name, for example, Bureau of the Census.

Anonymous book

10. *Producing Quality Technical Information* (San Jose, CA: IBM, 1986), 5–11.

When no human, government, or corporate author is listed, begin with the title of the book.

Proceedings

11. Mary Fran Buehler, "Rules That Shape the Technical Message:

Fidelity, Completeness, Preciseness," *Proceedings 31st International Technical Communication Conference* (Washington, DC: Society for Technical Communication, 1984), WE-9.

Unpublished dissertation

12. Laura Gambel, "Trauma in Emergency Room Surgery," Ph.D. diss., University of Chicago, 1999, 16.

Periodicals The following examples illustrate various forms of periodical notes.

Journal with continuous pagination

1. Thomas T. Barker, "Word Processors and Invention in Technical Writing," *The Technical Writing Teacher* 16 (1989): 127.

Journal that pages its issues separately

2. David P. Gardner, "The Future of University Industry Research," *Perspectives in Computing* 7.1 (1987): 5.

In this note, 7 is the volume number, 1 the issue number, and 5 the page number.

Commercial magazines and newspapers

A weekly or biweekly magazine:

3. Robert J. Samuelson, "The Health-Care Crisis Hits Home," *Newsweek*, 2 Aug. 1993, 38.

Monthly or bimonthly magazine:

4. Scott Beamer, "Why You Need a Charting Program," *MacUser*, June 1990, 126.

Newspaper

5. Louise Levathes, "A Geneticist Maps Ancient Migrations," *New York Times*, 27 July 1993, national ed., sec. C. p. 1.

Notice that when a date is not inside parentheses it is followed by a comma not a colon. When the masthead of the paper specifies the edition, put that information in your note. Newspaper content frequently changes from edition to edition on the same day.

Anonymous article

6. "Absolute," *New Yorker* 18 June 1990, 28.

When no author is given for an article, begin with the title of the article.

Other In this section, we show you model notes for computer software, information services, letters, and interviews.

Computer software

1. Apple Telecom, 1996, Apple Computer, Inc., Cupertino, CA.

In citing computer programs, give as much information as you have available, including author's name, city of publication, publisher, version number, and so forth

Information service

2. R. Berdan and M. Garcia, *Discourse-Sensitive Measurement of Language Development in Bilingual Children* (Los Alamitos, CA: National Center for Bilingual Research, 1982), ERIC ED 234 636.

Letters

3. John S. Harris, letter to the author, 19 July 1999.

Interviews

4. Herman Estrin, personal interview, 16 Mar. 1998.

Subsequent References After the first complete note on an item, subsequent references need only briefly identify the item. If a subsequent reference immediately follows the initial reference and the page number is the same, use *ibid.* (a shortened form of the Latin word for "same"). If the page number is different use *ibid.* with the new page number:

1. "Absolute," *New Yorker* 18 June 1990, 28.
2. *Ibid.*
3. *Ibid.*, 32.

If one or more citations come between the initial reference and a subsequent one, identify the subsequent reference with the best information you have, be it the author's last name, a government agency, a shortened title, or whatever:

4. Day, 188.
5. *Cataract*, 9.

If you have two works by the same author, include a shortened version of the title to identify the correct work:

6. Conniff, "Eye on the Storm," 21.

AUTHOR-DATE DOCUMENTATION: THE CHICAGO MANUAL OF STYLE

Author-date documentation combines parenthetical citations in the text with an alphabetized list of all the works cited. The system described in *The Chicago*

Manual of Style, sometimes with minor variations, is a common method of documentation in the physical and natural sciences. Shortly, we show you how to make parenthetical citations, but first we discuss how to construct the list of works cited.

Works Cited

In a section headed “Works Cited,” you will list all the works that you cite in your paper. Figure B-23 illustrates how it is done. We have annotated Figure B-23 to draw your attention to certain distinctive citation features, such as capitalization, italicization, and punctuation. For example, notice in Figure B-23 and the examples that follow that most titles use sentence capitalization: that is, they capitalize only the first word of a title and proper nouns. Notice also that the citation uses what is called “hanging indentation,” that is, the second and subsequent lines of a citation are indented three to five spaces.

We have categorized the models that follow as **Books, Periodicals,** and **Other.**

Books The following examples illustrate various forms of book citations.

One author

Day, Robert A. 1992. *Scientific English: A guide for scientists and other professionals*. Phoenix, AZ: Oryx.

Two or three authors

Von Koenigseck, Edward, James N. Irvin, and Sharon C. Irvin. 1991. *Technical writing for private industry: The a-to-z of o & m manuals*. Malabar, FL: Krieger.

Four or more authors

Rookard, Frank, Robert Matson, Gerald Fields, and Walter Mazura. 1995. *Communicating in business*. 4th ed. Savannah, GA: Osborn.

In the list of works cited, list all the authors of a work, no matter how many there are.

Anthology

Driskill, Linda P., June Ferrill, and Marda Nicholson Steffey, eds. 1992. *Business and managerial communication: New perspectives*. New York: Harcourt Brace Jovanovich.

Use the abbreviation *ed.* for one editor, *eds.* for two or more. Use *trans.* for one or more translators.

Essay in an anthology

Faigley, Lester. 1985. Nonacademic writing: The social perspective. In *Writing in nonacademic settings*, edited by Lee Odell & Dixie Goswami. New York: The Guilford Press.

Second or subsequent edition

Markel, Michael H. 1992. *Technical writing: Situations and strategies*. 3d. ed. New York: St. Martin's.

Article in a reference book

Petrochemical. 2001. *Columbia encyclopedia*.

When a reference work is well known, you need cite only the name of the article, the name of the reference work, the date of publication, and edition number (if it is not the first). If the work is arranged alphabetically, do not cite page numbers.

For less well-known reference works, give complete information. Cite the author of the article if you have that information; otherwise, begin with the name of the article.

“Perpetual calendar, 1775–2076.” 1989. *The New York Public Library desk reference*. Edited by Paul Fargis and Sheree Bykofsky. New York: Webster's New World. 9–13.

Pamphlet

Cataract: Clouding the lens of sight, 1989. San Francisco: American Academy of Ophthalmology.

If you know the author of a pamphlet, give complete information in the usual manner.

Government or corporate publication

National Aeronautics and Space Administration (NASA). 1989. *Voyager at Neptune: 1989*. Washington, DC: PO.

Treat publications for which the author is a government agency or a division within a company much as you would any book. When the corporate name is unwieldy, provide a shortened version in parentheses, which can then be used in the parenthetical citation.

Anonymous book

Producing quality technical information. 1986. San Jose, CA: IBM.

When no human, government, or corporate author is listed, begin with the title of the book.

Proceedings

Buehler, Mary Fran. 1984. Rules that shape the technical message: Fidelity, completeness, preciseness. *Proceedings of the 31st International Technical Communication Conference*. Washington, DC: Society for Technical Communication. WE 9.

Unpublished dissertation

Gambel, Laura. 1994. Trauma in emergency room surgery. Ph.D. diss. University of Chicago.

Periodicals The following examples illustrate various forms of periodical citations.

Journal with continuous pagination

Barker, Thomas T. 1989. Word processors and invention in technical writing. *The Technical Writing Teacher* 16: 126–35.

Citations for periodicals list the inclusive pages of the article. When page numbers are two digits, use both digits in the second number: 13–14. When page numbers are three digits or more, use only the last two digits in the second number: 324–26, 1034–39.

Journal that pages its issues separately

Gardner, David P. 1987. The future of university/industry research. *Perspectives in Computing* 7(1): 4–10.

In this citation, 7 is the volume number, 1 is the issue number, and 4–10 are the inclusive pages of the article.

Weekly or biweekly magazine

Samuelson, Robert J. 1993. The health-care crisis hits home. *Newsweek*, 2 August, 38.

Monthly or bimonthly magazine

Beamer, Scott. 1990. Why you need a charting program. *MacUser*, June, 126–38.

Newspaper

Levathes, Louise. 1993. A geneticist maps ancient migrations. *New York Times*, 27 July, national edition.

When the masthead of the paper specifies the edition, put that information in your note. Newspaper content frequently changes from edition to edition on the same day.

Anonymous article

“Absolute.” 1990. *New Yorker*, 18 June, 28–29.

When no author is given for an article, begin with the title of the article.

Other In this section, we show you model citations for computer software, information services, letters, interviews, and two or more entries by the same author.

Computer software

Prometheus Version 1.06. (1993). MacKnowledge Communication Software.

In citing computer programs, give as much information as you have, including the author’s name, the city of publication, the publisher, the version number, and so forth.

Information service

Berdan, R., and M. Garcia. 1982. *Discourse-sensitive measurement of language development in bilingual children*. Los Alamitos, CA: National Center for Bilingual Research. ERIC ED 234 636.

Letter

Harris, John S. 1995. Letter to the author. 19 July.

Interview

Estrin, Herman. 1994. Personal interview. 16 March.

Two or more works by the same author

Barker, Thomas. 1985. Video field trip: Bringing the real world into the technical writing classroom. *The Technical Writing Teacher* 11: 175–79.

———. 1989. Word processors and invention in technical writing. *The Technical Writing Teacher* 16: 126–35.

When you have two or more works by the same author or authors in your list of works cited, replace the author’s name in the second citation with a 3-em dash (or three unspaced hyphens) and alphabetize by title.

Crowhurst, M. 1983a. *Persuasive writing at grades 5, 7, and 11: A cognitive-development perspective*. Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada.

———. 1983b. *Revision strategies of students at three grade levels*. Final report. Educational Research Institute of British Columbia. ERIC

When your list of works cited includes two or more works written in the same year by the same author or authors, alphabetize by title, then mark each year with a lowercase letter, beginning with a.

Parenthetical Citation

When you have completed your list of works cited, refer your reader to it through parenthetical citations in your text. Figure B-24 shows a passage of text that includes parenthetical citations. We have annotated the figure to show you how the system works. Place the citation in the text where it is relevant and where it disrupts the text the least. Generally, you should place the citation at the end of the grammatical unit—the sentence or clause—that contains the material you are documenting.

The purpose of the parenthetical citation is to guide the reader to the corresponding entry in the list of works cited and, when appropriate, to cite the specific pages of the reference. Some model references follow.

Author and date

(Asher 1992)

This citation refers the reader to Asher's 1992 work in the list of works cited. Use this form when you are not citing a specific page.

Author, date, and page

(Asher 1992, 93)

This citation refers the reader to page 93 of Asher's 1992 work. Use this form when you're citing a specific page or pages.

Date and page

(1992, 97)

Use this form when you have already mentioned the author's name in the passage leading up to the parenthetical reference—for example, "As Asher's research shows. ..."

Pages only

(324–27)

Use this form when you have mentioned both the author's name and the date in the passage leading up to the parenthetical reference—for example, "As Asher's research in 1992 shows. ..."

Government or corporate author

(National Aeronautics and Space Administration 1994)

When you list a government agency or corporate division listed as the author in the works cited, you may use the name of the agency or division in your parenthetical citation. If the name is unwieldy, provide a shortened form in parentheses in the list of works cited and use that form in your references, like this:

(NASA 1994)

Title of work

(Producing quality technical information 1986, 14)

Use this form when you have no author's name and have listed the work by its title. As with the author–date reference, omit anything from the parenthetical citation that you have mentioned in the passage leading up to it.

Two or three authors

(Berdan and Garcia 1982)

Name all the authors of a work with two or three authors.

Four or more authors

(Odell et al. 1983, 28)

Use first author's name with *et al.* ("and others") to cite a work with four or more authors. However, list all the authors in the list of works cited.

Two or more works written by the same author in different years

(Jarrett 1992)

(Jarrett 1993)

When you have listed two or more works written by the same author but in different years, the dates will distinguish them.

Two or more works written by the same author in the same year

(Jarrett 1991a)

(Jarrett 1991b)

To distinguish two or more works written by the same author in the same year, mark the years with lowercase letters, in both the parenthetical citation and the list of works cited.

AUTHOR–DATE DOCUMENTATION: AMERICAN PSYCHOLOGICAL ASSOCIATION

Another widely used author–date documentation system is provided by the American Psychological Association (APA). Like *The Chicago Manual of Style* system, the APA system combines parenthetical citations in the text with an alphabetized list of all the references cited. The APA system is a common method of documentation in the social sciences. First we discuss how to construct the reference list; then we show you how to make parenthetical citations.

Reference List

In a section headed “Reference List,” you will list all the works that you cite in your paper. Figure B-25 illustrates how it is done. We have annotated Figure B-25 to draw your attention to certain distinctive features such as capitalization, transposition of names, punctuation, and spacing. For example, notice that in the APA system, in contrast to *The Chicago Manual of Style* system, not only the first author’s name but also the names of subsequent authors are transposed.

We have categorized the models as **Books**, **Periodicals**, and **Other**.

Books The following examples illustrate various forms of book citations.

One author

Day, R. A. (1992). *Scientific English: A guide for scientists and other professionals*. Phoenix, AZ: Oryx.

Multiple authors

Von Koenigseck, E., Irvin, J. N., & Irvin, S. C. (1991). *Technical writing for private industry: The a-to-z of o & m manuals*. Malabar, FL: Krieger.

In the reference list, cite all authors, no matter how many.

Anthology

Driskill, L. P., Ferrill, J., & Steffey, M. N. (Eds.). (1992). *Business and managerial communication: New perspectives*. New York: Harcourt Brace Jovanovich.

Use the abbreviation *Ed.* for one editor, *Eds.* for two or more. Use *Trans.* for one or more translators.

Essay in an anthology

Faigley, L. (1985). Nonacademic writing: The social perspective. In L. Odell & D. Goswami (Eds.), *Writing in nonacademic settings* (pp. 231–246). New York: The Guilford Press.

Second or subsequent edition

Markel, M. H. (1992). *Technical writing: Situations and strategies* (3rd ed.). New York: St. Martin's.

Article in a reference book

Petrochemical. (2001). *Columbia encyclopedia*.

When a reference work is well known, you need cite only the name of the article, the name of the reference work, and the date of publication. If the work is arranged alphabetically, do not cite page numbers.

For less well-known reference works, give complete information. Cite the author of the article if you have that information; otherwise, begin with the name of the article.

Perpetual calendar, 1775–2076 (1989). In P. Fargis and S. Bykofsky (Eds.), *The New York Public Library desk reference* (pp. 9–13). New York: Webster's New World.

Pamphlet

Cataract: Clouding the lens of sight. (1989). San Francisco: American Academy of Ophthalmology.

If you know the author of a pamphlet, give complete information in the usual manner.

Government or corporate publication

National Aeronautics and Space Administration [NASA]. (1989). *Voyager at Neptune: 1989*. Washington, DC: GPO.

Treat publications much as would any for which the author is a government agency or division within a company book. When the agency or corporate name is unwieldy, provide a shortened version in brackets, which can then used in the parenthetical citation.

Anonymous book

Producing quality technical information. (1986). San Jose, CA: IBM.

When no human, government, or corporate author is listed, begin with the title of the book.

Proceedings

Buehler, M. F. (1984). Rules that shape the technical message: Fidelity, completeness, preciseness. *Proceedings of the 31st International Technical Communication Conference*, WE 9.

Unpublished dissertation

Gambel, L. (1994). *Trauma in emergency room surgery*. Unpublished doctoral dissertation. University of Chicago.

Periodicals The following examples illustrate various forms of periodicals citations.

Journal with continuous pagination

Barker, T. T. (1989). Word processors and invention in technical writing. *The Technical Writing Teacher*, 16, 126–135.

For periodicals give the inclusive pages of the article. Use complete numbers for the second number, thus, 126–135, 1034–1045.

Journal that pages its issues separately

Gardner, D. P. (1987). The future of university/industry research. *Perspectives in Computing* 7(1), 4–10.

In this citation, 7 is the volume number, 1 is the issue number, and 4–10 are the inclusive pages of the article.

Weekly or biweekly magazine

Samuelson, R. J. (1993, August 2). The health-care crisis hits home. *Newsweek*, p. 38.

Monthly or bimonthly magazine

Beamer, S. (1990, June). Why you need a charting program. *MacUser*, pp. 126–138.

Newspaper

Levathes, L. 1993, July 27. A geneticist maps ancient migrations. *New York Times*, national ed., sec. C.

When the masthead of the paper specifies the edition, put that information in your note. Newspaper content frequently changes from edition to edition on the same day.

Anonymous article

Absolute. (1990, June 18). *New Yorker*, pp. 28–29.

When no author is given for an article, begin with the title of the article.

Other In this section, we show you model citations for computer software, information services, letters, interviews, and two or more entries by the same author.

Computer software

Prometheus Version 1.06. (1993). MacKnowledge Communication Software.

In citing computer programs, give as much information as you have, including the author's name, the city of publication, the publisher, the version number, and so forth.

Information service

Berdan, R., & Garcia, M. (1982). *Discourse-sensitive measurement of language development in bilingual children*. Los Alamitos, CA: National Center for Bilingual Research. (ERIC ED 234 636).

Personal communication

Do not cite letters and personal interviews in reference list. Give a parenthetical text reference only, like this:

In the opinion of writer John S. Harris (letter to the author, July 19, 1994), publishing today is ...

Two or more works by the same author

Barker, T. (1985). Video field trip: Bringing the real world into the technical writing classroom. *The Technical Writing Teacher* 11, 175–179.

Barker, T. (1989). Word processors and invention in technical writing. *The Technical Writing Teacher* 16, 126–135.

When you have two or more works by the same author or authors in your list of references, list them in order by publication date, with the earliest work first and the most recent one last, and repeat the name or names.

Crowhurst, M. (1983a). *Persuasive writing at grades 5, 7, and 11: A cognitive-development perspective*. Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada.

Crowhurst, M. (1983b). *Revision strategies of students at three grade levels*. Final report. Educational Research Institute of British Columbia. (ERIC ED 238 009).

When your list of works cited contains two or more works published in the same year by the same author or authors, alphabetize by title, then mark each year with a lowercase letter, beginning with a.

Parenthetical Citation

When you have completed your list of references, refer your reader to it using

parenthetical citations in your text. Place the citation in the text where it is relevant and where it disrupts the text the least. Generally, you should place the citation at the end of the grammatical unit—the sentence or clause—that contains the material you are documenting.

Figure B-26 shows a passage that contains parenthetical citations. We have annotated the figure to show you how the system works in the text. The purpose of the parenthetical citations is to guide the reader to the corresponding entry in the reference list and, when appropriate, to cite the specific pages of the reference. Some model references follow.

Author and date

(Asher, 1992)

This citation refers the reader to Asher's 1992 work in the list of works cited. Use this form when you are not citing a specific page.

Author, date, and page

(Asher, 1992, p. 93)

This citation refers the reader to page 93 of Asher's 1992 work. Use this form when you are citing a specific page or pages.

Date and page

(1992, p. 97)

Use this form when you have already mentioned the author's name in the passage leading up to the parenthetical citation, for example, "As Asher's research shows...."

Pages only

(pp. 324–327)

Use this form when you have mentioned both the author's name and the date in the passage leading up to the parenthetical citation, for example, "As Asher's research in 1992 shows...."

Government or corporate author

(National Aeronautics and Space Administration, 1994)

When you list a government agency or a corporate division as the author in the works cited, you may use the agency or corporate entity in your parenthetical citation. If the name is unwieldy, provide a shortened form in brackets in the list of works cited and use that form in your citations, like this:

(NASA, 1994)

Title of work

(Producing Quality Technical Information, 1986, p. 14.)

Use this form when you have no author's name and have listed the work by its title.

Multiple authors

(Berdan & Garcia, 1982)

Name all the authors of a work by two to five authors.

Six or more authors

(Odell et al., 1983, p. 28)

In a parenthetical citation for a book with six or more authors, use the first author's name with *et al.* ("and others"). However, in the list of references list all the authors.

Two or more works written by the same author in different years

(Jarrett, 1992)

(Jarrett, 1993)

When you have listed two or more works by the same author but written in different years, the dates will distinguish them.

Two or more works written by the same author in the same year

(Jarrett, 1991a)

(Jarrett, 1991b)

To distinguish two or more works written by the same author in the same year, mark the years with lowercase letters, in both the parenthetical citation and the list of references.

INTERNET DOCUMENTATION

In this section, we discuss some of the special problems in documenting Internet material, provide model notes and citations, and provide guidance in forming parenthetical references.

For the following reasons, formats for print material documentation usually do not work well for documenting Internet material:

- Internet material seldom has page numbers.
- Publication dates are frequently not provided on the Internet. If they are, they are changeable. That is, many Web sites are works in progress, frequently

- revised and updated; moreover, revisions occur with little or no warning.
- The normal punctuation used in notes and citations may be mistakenly seen as part of an Internet address.
 - Internet addresses must be stated exactly as given by the source; with every slash and period in exactly the right place and no extraneous spaces or punctuation. Improper spacing, wrong punctuation, or a misspelling in a standard citation may be embarrassing, but will probably not destroy the citation's usefulness. Similar errors in Internet citations will render them useless.
 - Because the publication date is frequently missing for Internet citations, the date that the user accessed the material may be useful and should be included.

Model Notes and Citations

We provide six models that should cover most of your needs in documenting Internet material, no matter what system of documentation you are using. Whether you choose a note or an author–date style citation, punctuate the entry as shown in each model. However, if you are using notes, put the author's name in normal order and use the indentation style shown in Figure B-22. If your citation is in a *Chicago Manual* author–date reference list, transpose the first author's name and use the indentation style shown in Figure B-23. If the citation is in APA author–date style, transpose the name of all the authors and use the indentation style shown in Figure B-25.

File Transfer Protocol (FTP) Sites FTP notes and citations contain the following information:

- Author or editor's name (if known), followed by a period
 - Document title, within quotation marks, followed by a period
 - Publication or revision date (if known), followed by a period
 - FTP site address, in angle brackets
 - Date of access, in parentheses, followed by a period
1. Jeff Iverson. "Alabama." `<ftp://sumex-aim.stanford.edu:info-mac/education/alabama-hc.hqx>` (6 Sep. 1996).

World Wide Web (WWW) Site WWW notes and citations contain the following information:

- Author or editor's name (if known), followed by a period
- Document title, within quotation marks, followed by a period
- Title of full work (if known), in italics, followed by a period
- Publication or revision date (if known), followed by a period
- WWW site address, angle brackets
- Date of access, parentheses, followed by a period

Waggoner, Ben. "Introduction to the Viruses." *Life on Earth*. 1995.
(<http://www.ucmp.berkeley.edu/alllife/virus.html>) (28 Oct. 1996).

Linkage Because of the possibility for linking one document to another in Internet systems, showing that link is often the most convenient way to cite a document. The following note shows that the home page of the Department of Physics at Texas Tech, created by Alan Sill, can be found on the Nine Planets Home Page, maintained by the University of Arizona at the link named "Many Sites."

2. Alan Sill. "Texas Tech Physics Department Home Page." Lkd. *The Nine Planets Home Page* at "Many Sites."
(<http://seds.lpl.arizona.edu/nineplanets/nineplanets/nineplanets.html>)
(27 July 1997).

Listserv Messages Notes and citations for listserv messages contain the following information:

- Author's name (if known), followed by a period
- Author's e-mail address, angle brackets
- Subject line of message, in quotation marks, followed by a period
- Date of message, followed by a period
- Listserv address, in angle brackets
- Access date, in quotation marks, followed by a period

Selber, Stuart. (selber@ttacsl.ttu.edu) "Call for Articles on Managing International Technical and Scientific Communication." 29 Aug. 1996. (CPTSC-L@CLVM.BITNET) 30 Aug. 1996.

E-Mail Messages Notes and citations for e-mail messages contain the following information:

- Author's name, followed by a period
 - Author's e-mail address, in angle brackets
 - Subject line from message, in quotation marks, followed by a period
 - Date of message, followed by a period
 - Kind of communication, for example, personal, business, professional, etc., followed by a period
 - Date of access, in parentheses, followed by a period
3. Marlene Ellin. (Mellinab@AOL.com) "Reviews." 10 Sep. 1996. Business communication. (10 Sep. 1996).

Synchronous Communications Notes and citations for synchronous communications (MOOs, MUDs, IRSs, chat rooms, and the like) contain the following information:

- Name of speaker (if known), followed by a period
- Type of communication (group discussion, interview, etc.), followed by a period
- Internet address in angle brackets
- Date in parentheses, followed by a period

Stephens, Harold. Group Discussion. <<http://204.31.29.22.8010>> (12 Jan. 1997).

Parenthetical Citation

When you are using an author–date system, make parenthetical references much as you do at any time. Use whatever information you have to work with. If you have an author or editor’s name and a publication date, use both:

Chicago Manual style (Ellin 1996)
 APA style (Ellin, 1996)

If you do not have a publication date, simply use the author or editor’s name, thus:

(Sill)

If you do not have a name, use whatever comes first in the citation, for example, a title or a shortened title:

(International Professional Communication)

If you have two or more citations to the same person and no publication dates, use letters to distinguish them both in the list of references and in the parenthetical references (See page 671).

FIGURES

Figures, such as tables and graphs, are documented separately from the text. As we explain in Chapter 12, Using Illustrations, sources are documented directly on the figure. In general, the form of figure citations follows that of a note in the note system or that of an entry in a list of works cited or list of references. Because figures have complete documentation internally, their citations do not appear with the other citations in a paper.

COPYRIGHT LAW

Stringent copyright laws protect published work. When you are writing a student report that you do not intend to publish, you need not concern yourself with these

laws. If you do intend to publish a report, however, you should become familiar with copyright law. You must get permission from the copyright holder to use illustrations and extended quotations. Look for information about the copyright holder on the title page of a publication. You can find a good explanation of copyright law in Chapter 4, Rights and Permissions, of *The Chicago Manual of Style*.

DESIGNING A WORLD WIDE WEB SITE

- Site Creation
- Page Design
- Site Maintenance

Sources

- Web Sites
- Books

To create a Web site, you will need access to a computer that has a direct Internet connection, the server software necessary to establish a World Wide Web service, and the space available for storage of World Wide Web pages. A variety of Internet service providers offer access to such World Wide Web servers.

You will also need authoring software. Many World Wide Web pages are written using HyperText Markup Language (HTML), a special coding that identifies the elements of each page, such as titles, headings, lists, and block quotations. You could do the HTML coding yourself or save time with free authoring software such as Microsoft FrontPage Express or Netscape Composer. Such programs apply HTML to your files by translating your designated formatting features to HTML tags. Even if you have authoring software, you probably should know the basics of HTML: This knowledge will help you to interpret the coding of pages you would like to imitate and will permit you to do a little quick editing of your pages whenever necessary (see Figure B-27).

SITE CREATION

In creating your site, consider the following guidelines.

- Consider your purpose. A Web site that is trying to sell a product or service is different from one that is designed to entertain or to offer information. A newspaper or magazine site is different from a catalog site. Ask yourself two important questions: What do you hope to accomplish with your Web site? What do you want visitors to think or do at your Web site? Your answer to these two questions should guide the remainder of your design decisions.
- Consider your audience. A Web site aimed at children will ordinarily be quite different from one targeting adults. A Web site for engineers will typically differ from one for musicians. If your audience comprises a wide cross

section of the general population, you will have to design for a variety of different education and income levels, different levels of motivation, and different kinds of hardware and software. If your audience is a fairly narrow group (e.g., the employees of a company), you will tailor your page to their specific desires and requirements.

- Explore and experiment. Navigate the World Wide Web for a while, locating pages you would like to imitate or designs you would like to adapt for your site. The almost unlimited variety of sites offers a good stimulus for your creativity. Look especially at sites whose audience and purpose are similar to your own.
- Strive for a consistent design for all the pages at your site. A consistent design will make your site more memorable and will help visitors to recognize when they have entered and when they have exited your site.
- Make your site inviting but simple. Don't litter your pages with meaningless graphics: Focus your reader's attention on your information instead of your decorations.
- Focus your efforts on the home page. The home page is where most visitors will enter your site. Make this page especially inviting and easy to navigate. If your home page is unattractive or confusing, visitors will exit your site without having browsed it.
- Be sensitive to the cultural differences of your international audience. Keep in mind that the World Wide Web is worldwide. Avoid idioms, slang, and biased language.
- Give your visitors opportunities to interact with your pages. Remember that a World Wide Web site is a dynamic medium, intrinsically different from the static paper page. Visitors don't simply want to read or view your World Wide Web pages: They want to interact with your material—to click on links and audio or video clips. They want to do things over the World Wide Web, such as order merchandise, download software, make reservations, or complete applications.

PAGE DESIGN

In designing your pages, keep in mind the following common practices:

- Include a complete menu of links at the top and bottom of each page. Make it as easy as possible for visitors to navigate your pages with a minimum of scrolling.
- Avoid excessive links in the running text. Each link in the running text is a distraction from your message, requiring readers to make a choice—exit the page or continue reading. Give the complete menu of links at the top and bottom of the page and only crucial links in the running text.
- Include identifying information on each page. At the bottom of every page, place a copyright notice (e.g., © 2001 ABC Corporation), the date of the latest revision (e.g., *last revised February 1, 2001*), and your e-mail address. Visitors to your site will want to know who to credit as the source of the

information, how up-to-date the information is, and who to contact with questions or comments.

- Choose a light, solid color for the background of your pages, such as light yellow, green, or blue. Text displayed on dark or patterned backgrounds can get visitors' attention but is also more difficult to read. Remember that the background is just that: background. If it's a distraction, it is ineffective and inefficient. Try to focus your reader's attention instead on the foreground—the text of your pages.
- Adjust the length of your pages to your information. Ordinarily, pages on the World Wide Web are relatively short: approximately one to three screens of information. If the material on a page is a long list, however, readers might prefer to scroll through the multiple screens of information and avoid the loading time that always accompanies a change of pages.
- Keep illustrations small. Large illustrations can be impressive but often take a long time to load. For indifferent visitors and people with older machines or slow Internet connections, that long load time can be annoying. Instead, include a thumbnail-sized illustration that interested visitors can view in detail by clicking it to load the larger version.
- Restrict animation to video or audio–video clips that the visitor specifically clicks on to view. Continuous motion (e.g., a blinking word) is a highly distracting element, reducing the reader's ability to pay attention to the other information on the page. The ability to animate your page doesn't mean that using animation is always a good idea.
- Use only two levels of heading. On a scrolling page, readers often have difficulty keeping track of the organization and hierarchy of information.
- Minimize your use of italics and script. These fonts are difficult to read on the screen.
- Use bold type selectively and consistently. Bold type is attention-getting and identifies information of special importance, but it loses its power of emphasis if you use it excessively or arbitrarily.
- Edit and proofread carefully. Errors in grammar and punctuation are distracting and jeopardize the credibility of your site.
- Use a variety of browsers, computers, and monitors to check the design of your site. A page that looks satisfactory with your browser on your monitor might be disappointing if viewed with a different browser on another monitor. Netscape Navigator and Internet Explorer, for example, don't always interpret HTML coding in identical ways. Macintosh monitors, also, operate at a higher brightness level than PC monitors, causing colors on a Macintosh to look lighter. And the higher the resolution of either monitor, the smaller that images display on the screen. If you are familiar with such variations, you will be able to adapt the design of your pages to the technology available to your audience.
- Use variations of typography to check the design of your pages. Each visitor to your site has partial control over how your pages will look on his or her screen. Specifically, visitors may decide for themselves on the following:

Color of the links
Underlining of the links
Color of the type
Size of the type
Typeface

Check the design of your pages by using variations of these five elements to see if your site still looks inviting and navigable.

SITE MAINTENANCE

Once you have designed your site, you still have to maintain it. Remember the following guidelines.

- Register your site with a variety of search engines. Doing so will make it easy for people to locate your site and see the information and services you have to offer.
- Keep updating your pages. Give visitors to your site a reason to return regularly. Offer new information and new opportunities to interact with your pages.
- Periodically check all your internal and external links to see that each is still active. (Internal links connect to other pages of your site; external links connect to pages at other sites.) Dead links annoy your visitors and jeopardize the efficiency and credibility of your site. Ordinarily, internal links break accidentally because of mistakes in the HTML coding that occur during updating or editing of your pages. External links break if a World Wide Web site closes or changes its address (usually because it changes its Internet access provider). A variety of programs are available to check links.
- If possible, avoid changing the address of your site. Changing your address will cause dead links at all the other sites with links to your pages. In addition, earlier visitors to your site who noted your location will be left with the wrong address. If you must change your address, notify visitors to your existing site of the coming change as soon as possible. Include on the existing site a link to your new site, and keep the existing site open for at least one month while you direct visitors to your new address. Use e-mail to advise appropriate discussion lists of your new address and register your new address with appropriate search engines.

SOURCES

Consult the following for useful advice on designing a Web site.

Web Sites

Web Pages That Suck: www.webpagesthatsuck.com
WebMonkey: www.webmonkey.com

WebReference: www.webreference.com
WebReview: www.webreview.com
World Best Websites: www.worldbestwebsites.com
World Wide Web Consortium: www.w3.org

Books

Donnelly, Vanessa. *Designing Easy-to-Use Web Sites: A Hands-on Approach to Structuring Successful Websites*. New York: Addison-Wesley, 2000.
Lynch, Patrick J., and Sarah Horton. *Web Style Guide: Basic Design Principles for Creating Web Sites*. New Haven: Yale University Press, 1999.
Niederst, Jennifer. *Web Design in a Nutshell: A Desktop Quick Reference*. Sebastopol, CA: O'Reilly & Associates, 1998.
Nielsen, Jakob. *Designing Web Usability*. Indianapolis: New Riders, 2000.
Veen, Jeffrey. *The Art and Science of Web Design*. Indianapolis: New Riders, 2001.

OUTLINING

As illustrated in the accompanying sample outline, an outline has a title, purpose statement, audience statement, and body. We have annotated the sample outline to point out major outlining conventions. Following the sample outline, we provide other major outlining principles.

Desalination Methods for Air Force Use

Purpose: To choose a desalination method for Air Force bases located near large bodies of salt water

Audience: Senior officers

First level, use capital roman numeral.

Second level, use capital letters.

Third level, use arabic numerals.

- | | | | |
|----|--------------------------|------|----------------------|
| I. | Statement of the problem | III. | Electrodialysis |
| | A. | A. | Theory of method |
| | B. | B. | Judgment of method |
| | | | 1. Cost |
| | | | 2. Purity |
| | C. | 3. | Quantity |
| | | | 1. Air Force manuals |
| | | IV. | Reverse osmosis |
| | | A. | Theory of method |
| | | | 2. Expert opinion |

- a. Journals
 - b. Interviews
 - II. Explanation of criteria
 - A. Cost
 - B. Purity
 - C. Quantity
- B. Judgment of method
 - 1. Cost
 - 2. Purity
 - 3. Quantity
- V. Choice of method

- *Make all entries grammatically parallel.* (See the entry for Parallelism.) Do not mix noun phrases with verb phrases, and so forth. A formal outline with a hodgepodge of different grammatical forms will seem to lack—and, in fact, may lack—logic and consistency.

Incorrect

- I. The overall view
- II. To understand the terminal phase
- III. About the constant-bearing concept

Correct

- I. The overall view
- II. The terminal phase
- III. The constant-bearing concept

- *Never have a single division.* Things divide into two or more; so obviously, if you have only one division, you have done no dividing. If you have a I, you must have a II. If you have an A, you must have a B, and so forth.

Incorrect

- I. Visual capabilities
 - A. Acquisition
- II. Interception and closure rate
- III. Braking

Correct

- I. Visual capabilities
 - A. Acquisition
 - B. Interception and closure rate
- II. Braking

- Do not have entries for your report's introduction or conclusion. Outline only the body of the report. Of course, the information in your purpose statement belongs in your introduction, and perhaps the information about audience belongs there as well.
- Use substantive statements in your outline entries. That is, use entries such as "Reverse osmosis" or "Judgment of method" that suggest the true substance of your information. Do not use cryptic expressions such as "Example 1" or "Minor premise."

Many word processing programs have an outlining feature that allows you to choose the outlining scheme you want—for example, I, A, B, 1, 2. The program automatically writes the appropriate numbers or letters for you and changes them when you change the outline.

- FIGURE B-1 • Letter of Transmittal
- FIGURE B-2 • Preface
- FIGURE B-3 • Student Label
- FIGURE B-4 • Title Page
- FIGURE B-5 • Table of Contents

FIGURE B-6 • Professionally Produced Table of Contents

Source: FDA Consumer, July/August 2000, 1.

FIGURE B-7 • List of Illustrations

FIGURE B-8 • List of Symbols

FIGURE B-9 • Glossary

FIGURE B-10 • Informative Abstract

Source: Laurel L. Northouse, "Breast Cancer in Younger Women: Effects on Interpersonal and Family Relations," Monographs: Journal of the National Cancer Institute 16 (1994): 183.

FIGURE B-11 • Descriptive Abstract

Source: Mark Gellis, "Leadership, Teamwork, and the Professional Writing Class," Journal of Technical Writing and Communication 28 (1998): 251.

FIGURE B-12 • What Managers Want to Know

Source: James W. Souther, "What to Report," IEEE Transactions on Professional Communication PC-28 (1985): 6

FIGURE B-13 • Executive Summary