

Guidelines for Finding, Evaluating, and Citing Sources

1. Examine bibliographies at the end of the articles and books you've already found. Remember that one quality source can, in its bibliography, point to many other resources.
2. Citing sources isn't just about acknowledging intellectual or informational debts; it's also a courtesy to your readers, directing them how to find out more about the subject cited.
3. Before you settle in with one author's book-length argument, use indexes and bibliographies and other resources to achieve a broader view.
4. URLs with domain names ending in .edu and .gov usually offer more reliable choices than the standard .com.
5. When professors direct you to do bibliographic research, they usually are referring to research done with indexes; these are available in print, online, and CD-ROM formats.
6. In evaluating a website about which you don't know much, try "backspacing" a URL to trace back to its authorship or institutional affiliation.

CHAPTER 9

From Paragraphs to Papers: Forms and Formats Across the Curriculum

Overview This is a chapter about organization, about the various formats writers use to structure their ideas. You will learn the *why* as well as the *how* of the formats prescribed by particular academic disciplines in the humanities and in the natural and social sciences, such as English, political science, psychology, biology, and chemistry. The chapter argues that these formats are actually much more similar than their stylistic differences may lead you to believe. The chapter also includes discussion of transitions and of typical paragraph shapes, including introductions and conclusions—the building blocks of writing in any discipline.

Overall, the chapter seeks to increase your **rhetorical awareness**, that is, your awareness of how an audience's attitudes and needs can affect the shape of your writing.

The Two Functions of Formats

We began this book by saying that learning to write well means learning to use writing in order to think well. Writing is not just a way of organizing thoughts; it is a way of making thoughts happen. This chapter asks you to consider the relationship between the forms of certain kinds of academic writing, such as the lab report, and the way these forms shape thinking. Once you train yourself to see the kind of thinking a format asks you to do, you will be able to adapt your writing process accordingly.

It's important to recognize that all organizational schemes are conventional—which is to say, they are agreed-upon protocols with social functions. They show you how to write in a way that will allow you to be heard by others in a particular discourse community—a group of people connected by shared ways of talking and thus of thinking. But it's also important to recognize that these protocols are not just containers for information; they are tools of invention.

Most of the writing (and thinking) people do is generated by some kind of format, even if they are not aware of it. Accordingly, you should not regard

the formats that you encounter simply as *prescriptive* sets of artificial rules. Rather, try to think of them as *descriptive* accounts of the various heuristics—sets of questions and categories—that humans typically use to guide and stimulate their thinking.

TWO FUNCTIONS OF FORMATS: RHETORICAL AND HEURISTIC

- Rhetorical: formats make communication among members of a discipline easier and more efficient.
- Heuristic: formats offer writers a means of finding and exploring ideas.

Because formats offer a means not only of displaying thinking in a discipline, but also of shaping it, the format that a discipline requires (whether tacitly or overtly) conditions its members to think in particular ways. Learning to use the format that scientists use predisposes you to think like a scientist. Although knowing the required steps of a discipline's writing format won't write your papers for you, not knowing how writers in that discipline characteristically proceed can keep you from being read.

Academic disciplines differ in the extent to which they adhere to prescribed organizational schemes. In biology and psychology, for example, formal papers and reports generally follow an explicitly prescribed pattern of presentation. Some other disciplines are less uniform and less explicit about their reliance on formats, but writers in these fields—economics, for example, or history or English or religion—usually operate within fairly established forms as well.

The writing strategies and heuristics in this book are formats in the sense that most prescribe a series of steps. The emphasis of *Writing Analytically* rests more on the process of invention than it does on the organization of the finished paper, but, as we have been suggesting, the two are not really separate. The book's heuristics can be used as organizational models; they can also be adapted for use in the various disciplinary formats that college writing requires.

Using Formats Heuristically: An Example

To lose sight of the heuristic value of formats is to become preoccupied with formats merely as disciplinary etiquette. The solution to this problem is to find the spaces in a format that will allow it to work as a heuristic. Consider how you might go about using even a highly specified organizational scheme like the following.

1. State the problem.
2. Develop criteria of adequacy for a solution.
3. Explore at least two inadequate solutions.
4. Explicate the proposed solution.
5. Evaluate the proposed solution.
6. Reply to anticipated criticisms.

The best reason not to ignore any of the six steps in this problem/solution format is that the format does have a logic, although it leaves that logic unstated. The purpose of including at least two inadequate solutions (step 3), for example, is to protect the writer against moving to a conclusion too quickly on the basis of too little evidence. The requirements that the writer evaluate the solution and reply to criticisms (steps 5 and 6) press the writer toward complexity, preventing a one-sided and uncritical answer. In short, heuristic value in the format is there for a writer to use if he or she doesn't allow a premature concern with matters of form to take precedence over thinking. It would be a mistake, in other words, to assume that one must move through the six steps consecutively; the writer would only need to arrange his or her thinking in that order when putting together the final product.

The Common Structure of Most Academic Writing

Differences in surface features—sentence style, word choice—tend to obscure the fact that a common underlying structure and set of aims unites most kinds of academic writing across the curriculum.

You can train yourself to start seeing this underlying structure by first recognizing that academic writing in all disciplines is **problem-oriented**, which is to say that academic writing typically starts by noting something that is missing from previous writing and research. As you will see, disciplines differ in how overtly writers may single out problems in other writers' thinking. And yet, in one way or another, most academic writing begins by locating something that needs to be done—something that calls for more research, for example—and saying why this new work might matter.

Science Format Compared with Other Kinds of Writing

Here is a quick overview of the organizational scheme prescribed in the natural sciences and for some kinds of papers in the social sciences, such as reports on research in psychology and political science. Although not all writing in these disciplines follows this format, most does—especially lab reports and articles based on the experimental method and quantitative research. The structure is commonly referred to as IMRAD:

- I introduction
- M methods
- R results
- A and
- D discussion

You can think of this format as two descriptions of the research (methods and results) framed by two sections (introduction and discussion) that locate it in the context of existing knowledge in the field. The introduction locates the new work in terms of what has already been done (which points to what

still needs to be done). The discussion section considers how knowledge in the field might be changed by the addition of the new results. (See LabWrite Program sponsored by NSF at www.ncsu.edu/labwrite. Also see advice from the Council of Science Editors—CSE.)

The following Voice from Across the Curriculum offers a fuller definition of the parts of the report format used in the sciences, a format we will then restate in a way that makes the common denominators of this and other formats easier to recognize.

VOICES FROM ACROSS THE CURRICULUM

Writing in the Sciences: A Biochemistry Professor Speaks

The lab report as taught in college science courses teaches students to mimic the process of thinking required to write a scientific paper. The governing question of the lab report is, "To what extent is my data consistent with what I was supposed to get?"

The lab report, like most scientific writing, has four parts (five if you include the abstract):

Abstract

—The short synoptic version of essentially the entire paper: What you did, what you found, and how you did it.

Introduction/Purpose/Objective

—What you are trying to accomplish and why it is important

Methods/Experimental Procedures

—The details of how you performed the experiments

Results/Data

—Reporting of the data without commentary, often done with tables, graphs, and figures rather than text.

—Primarily summative and descriptive

Discussion/Conclusions

—This is where the analysis happens. Cite the data, then make qualified, evidence-based claims from the data; draw implications.

In the written accounts of scientific experiments, some information is repeated across sections. This repetition is deliberate. No scientist reads a paper in order, and so every section has to stand by itself.

—KERI COLABROY, PROFESSOR OF BIOCHEMISTRY

Here is a restatement of the IMRAD format demonstrating how similar it is in its aims and methods to other kinds of academic writing.

THE COMMON FORMAT OF ACADEMIC WRITING

1. Begin with some kind of problem or question or uncertainty. Say why the new study might matter, why it needs doing. Offer a theory to be tested (working thesis/hypothesis).

2. Test the adequacy of the theory by conducting some kind of experimental procedure or other way of analyzing evidence.
3. Report resulting data—what was revealed by the experiment or other analytical method such as close reading of textual evidence or statistical analysis.
4. Interpret the results and draw conclusions about their significance.
How might the results change current thinking and/or open the way to new questions and further study?

If you are just learning to write and think in an academic discipline, you cannot be expected to say in the opening paragraph the state of knowledge in the field on a particular question. Nor can you be expected to arrive at something that will alter thinking in a discipline—although sometimes this does, in fact, happen. Nevertheless, college writers and their teachers across the curriculum write with similar goals: *ask and answer a new question, offer alternatives to existing ideas or evidence, or provide a new perspective or better evidence on something already known.*

The observations in the following Voices from Across the Curriculum apply to much, but certainly not all, of the writing that goes on in the sciences. Writing in physics, for example, in which research is more theoretical, often takes a different form. There are other exceptions. Writing in psychology can appear in the form of the case study, rather than in reports on experiments.

VOICES FROM ACROSS THE CURRICULUM

How to Write—and Read—Scientific Formats: Two Professors Speak

Experimental Psychology uses a very rigid format. I explain to the students the functions of the different sections for the reader. Once students start to read journal articles themselves, the functions of the sections become clear. Readers do not always want to read or reread the whole article. If I want to replicate someone's research, I may read just the "Methods" section to get the technical details I need. I may read just the "Results" section to get a sense of the numerical results I might expect. On the other hand, I may not care about the details of how the experiment was run. I might just want to know if it worked, in which case I would read the first few sentences of the "Discussion" section. The format lets me know exactly where to find whatever I might be looking for, without having to read through the whole article.

—LAURA EDELMAN, PROFESSOR OF PSYCHOLOGY

In writing in the social sciences, there is a standard plot with three alternative endings. The "Introduction" (a standard section of APA style) sets forth the problem, which the "Methods" section promises to address. The "Results" section "factually" reports the outcome of the study, with the "Discussion" section interpreting the results. "The data" are given the starring role in determining which ending is discussed in the "Discussion" section: hypothesis confirmed, hypothesis rejected, or hard to say. (I would say

"which ending the author chooses" versus "which ending is discussed," but the data are supposed to be determinative, and the role of the author/investigator neutral.) Analytical thinking comes in setting up the problem and making sense of the results in conjunction with existing literature on the subject.

—ALAN TJELTVEIT, PROFESSOR OF PSYCHOLOGY

Three Organizing Strategies

Here are three organizational patterns that are useful in many kinds of writing. They have both rhetorical and idea-generating (heuristic) value.

Climactic Order: Saving the Best for Last

Climactic order arranges elements from least to most important. The idea is to build to your best points, rather than leading with them and thereby allowing the paper to trail off from your more minor and less interesting observations.

But what are your best points? A frequent mistake that writers commit in arranging their points climactically—and one that has much to do with the rhetoric of form—is to assume that the best point is the most obvious, the one with the most data attached to it and the one least likely to produce disagreement with readers. Such writers end up giving more space than they should to ideas that really don't need much development because they are already evident to most readers.

If you follow the principle of climactic order, you would begin with the most obvious and predictable points—and ones that, psychologically speaking, would get readers assenting—and then build to the more revealing and less obvious ones. So, for example, if the comparisons between film A and film B are fairly mundane but the contrasts are really provocative, you'd get the comparisons out of the way first and build to the contrasts, exploiting DIFFERENCE WITHIN SIMILARITY (see Chapter 3).

If, for example, there are four important reasons for labeling genetically modified foods, you might choose to place the most compelling one last. If you were to put it first, you might draw your readers in quickly (a principle used by news stories) but then lose them as your argument seemed to trail off into less interesting rationales.

Comparison/Contrast: Two Formats

In Chapter 3, we discuss comparison as an invention strategy. We now want to address this subject from the perspective of organizing a paper. The first decision a writer has to make when arranging comparisons and contrasts is whether to address the two items being compared and contrasted in sequential blocks (A and then B) or point by point.

- Organize by subjects being compared (subject A and then subject B), or
- Organize the comparison under a series of topics (Topic 1: A and B, Topic 2: A and B, etc.)

If you are comparing subject A with subject B, you might first make all the points you wish to make about A and then make points about B by explicitly referring back to A as you go. The advantage of this format is that it will allow you to use comparing and contrasting to figure out what you wish to say as you are drafting.

The disadvantage of this "subject-A-then-subject-B" format is that it can easily lose focus. If you don't manage to keep the points you raise about each side of your comparison parallel, you may end up with a paper comprised of two loosely connected halves. The solution is to make your comparisons and contrasts in the second half of the paper connect explicitly with what you said in the first half. What you say about subject A, in other words, should set the subtopics and terms for discussion of subject B.

The alternative pattern of organization for comparisons and contrasts is to organize by topic—not A and then B, but A1 and B1, A2 and B2, A3 and B3, and so forth. That is, you talk about both A and B under a series of subtopics. If, for example, you were comparing two films, you might organize your work under such headings as directing, script, acting, special effects, and so forth.

The advantage of this format is that it better focuses the comparisons, pressing you to use them to think with. The disadvantage is that organizing in this way is sometimes difficult to manage until you've already done quite a bit of thinking about the two items you're comparing. The solution, particularly in longer papers, is sometimes to use both formats. You begin by looking at each of your subjects separately to make the big links and distinctions apparent and then focus what you've said by further pursuing selected comparisons one topic at a time.

Concessions and Refutations: Giving and Taking Away

In the language of argument, you *concede* whenever you acknowledge that a position at odds with your own does indeed have merit, even though you continue to believe that your position overall is the more reasonable one. When making a concession, a writer needs to represent this competing point of view as genuinely creditable—rather than only seemingly creditable until he or she lays out a means of opposing it. Another option is to argue against these views so as to *refute* their reasonableness. (For a misuse of concessions and refutations, see *Straw Man* under *A Brief Glossary of Common Logical Fallacies* in Chapter 5, *Interpretation*.)

As a rule of thumb, avoid making your readers wait too long before you either concede or refute a view that you can assume will already have occurred to them. If you delay too long, you may inadvertently suggest either that you are unaware of the competing view or that you are afraid to bring it up.

In the case of short and easily managed concessions and refutations, you can often house these within the first several paragraphs and, in this way, clear a space for the position you wish to promote. In the case of more complicated and potentially more threatening alternative arguments,

you may need to express your own position clearly and convincingly first. But to avoid the rhetorical problem of appearing to ignore the threat, you will probably need to give it a nod, telling readers that you will return to a full discussion of it later, once you have laid out your own position in some detail.

The placement of arguments has much to do with their relative complexity. Reasonably straightforward and easily explained concessions and refutations can often all be grouped in one place, perhaps as early as the second or third paragraph of a paper. The approach to concession and refutation in more complex arguments does not allow for such grouping. For each part of your argument, you will probably need to concede and refute as necessary, before moving to the next part of your argument and repeating the procedure.

TRY THIS 9.1: Locating Concessions and Refutations

Study the paragraph on gender inequality and language to answer the following questions: (1) What language functions as concession? (2) What language functions as refutation? (3) What part of the competing argument does the refutation still appear willing to concede? (4) How is the refutation that the writer offers different from the position to which he concedes?

Gender Inequality and Linguistic Bias

The more conservative side on this issue questions whether the elimination of generic pronouns can, in fact, change attitudes, and whether intentionally changing language is even possible. The reformist side believes that the elimination of generic pronouns is necessary for women's liberation from oppression and that reshaping the use of male pronouns as generic is both possible and effective. Although the answer to the debate over the direct link between a change in language and a change in society is not certain, it is certain that the attitudes and behaviors of societies are inseparable from language. Language conditions what we feel and think. The act of using "they" to refer to all people rather than the generic "he" will not automatically change collective attitudes toward women. These generic pronouns should be changed, however, because 1) the struggle itself increases awareness and discussion of the sexual inequalities in society, and subsequently, this awareness will transform attitudes and language, and 2) the power of linguistic usage has been mainly controlled by and reserved for men. Solely by participating in linguistic reform, women have begun to appropriate some of the power for themselves.

What Introductions Do: "Why What I'm Saying Matters"

As we have said, introductions in all disciplines have some underlying commonalities. Most kinds of academic writing begin by telling readers what the writer found interesting, worth pursuing, and why. The Latin roots of the

word suggest that introductions bring the reader into a subject (*intro*, meaning "within," and *ducere*, meaning "to lead or bring"). Its length varies, depending on the scope of the writing project. An introduction may take a paragraph, a few paragraphs, a few pages, a chapter, or even a book. In most academic writing, one or two paragraphs is a standard length.

The primary challenge in writing introductions lies in occupying the middle ground between saying too much too soon (overassertive prejudgment) and saying too little up front (avoidance of taking a position). The most important thing to do in the introductory paragraph of an analytical paper is to lay out a *genuine issue*, something that seems to be at stake in whatever it is you are studying.

Set up this issue as quickly and concretely as you can. The introduction should give your reader a quick sampling of some feature or features in your evidence that initially aroused your curiosity. As a general rule, you should assume that readers of your essay will need to know on page one—preferably by the end of your first paragraph—what your paper is attempting to resolve or negotiate. Your introduction is saying: "Look at this, reader; it is worth thinking about, and here's why."

As we said in Chapter 6, Finding and Evolving a Thesis, in most academic disciplines (with some significant exceptions, such as philosophy) the first paragraph of a paper usually does not need to—and most often can't—offer your conclusion; it will take the body of your paper to accomplish that. The introduction should, however, provide a quick look at particular details that set up the issue. You can then use these details to generate a *theory*, a *working hypothesis*, about whatever it is you think is at stake in the material. The rest of the paper then tests and develops this theory. (See "Introductions, Conclusions, and the Thesis" in Chapter 6.)

In the sciences, the standard instructions for composing an introduction are worded somewhat differently, but with similar intent: create a context by citing all previous work relevant to your study, show the need for new information by pointing to an uncertainty or problem in existing knowledge, say what you are trying to accomplish and why it is important.

We here repeat from Chapter 6 a list of kinds of questions that introductory paragraphs usually answer:

- What is potentially interesting about what I have noticed, and why?
- What am I seeing that other people perhaps have not seen or have not sufficiently acknowledged?
- Why might what I have noticed matter in relation to the usual ways of thinking about my subject?
- How might what I have noticed require a new way of thinking about my subject, or at least a revision, however slight, of the usual ways of thinking?

How Much to Introduce Up Front: Typical Problems

The danger is trying to turn the introduction into a miniature essay. Consider the three problems discussed next as symptoms of overcompression, telltale signs that you need to reconceive, and probably reduce, your introduction.

Digression: Digression results when you try to include too much background. If, for example, you plan to write about a recent innovation in video technology, you'll need to monitor the amount and kind of technical information you include in your opening paragraphs. You'll also want to avoid starting at a point that is too far away from your immediate concerns, as in "From the beginning of time humans have needed to communicate."

As a general rule in academic writing, don't assume that your readers know little or nothing about the subject. Instead, use the social potential of the introduction to negotiate with your audience, setting up your relationship with your readers and making clear what you are assuming they do and do not know.

Incoherence: Incoherence results when you try to preview too much of your paper's conclusion in the introduction. Such introductions move in too many directions at once, usually because the writer is trying to conclude before going through the discussion that will make the conclusion comprehensible. The language you are compelled to use in such cases tends to be too dense, and the connections between the sentences tend to get left out, because there isn't enough room to include them. After having read the entire paper, your readers may be able to make sense of the introduction, but in that case, the introduction has not done its job.

The following introductory paragraph is incoherent, primarily because it tries to include too much. It neither adequately connects its ideas nor defines its terms.

Twinship is a symbol in many religious traditions. The significance of twinship will be discussed and explored in the Native American, Japanese Shinto, and Christian religions. Twinship can be either in opposing or common forces in the form of deities or mortals. There are several forms of twinship that show duality of order versus chaos, good versus evil, and creation versus destruction. The significance of twinship is to set moral codes for society and to explain the inexplicable.

Prejudgment: Prejudgment results when you appear to have already settled the question to be pursued in the rest of the paper. The problem here is logical. In the effort to preview your paper's conclusion at the outset, you risk appearing to assume something as true that your paper will, in fact, need to test. In most papers in the humanities and social sciences, where the thesis evolves in specificity and complexity between the introduction and conclusion, writers and readers can find such assumptions prejudicial. Opening in this way, in any event, can make the rest of the paper seem redundant. Even in the sciences, in which a concise statement of objectives, plan of attack, and

hypothesis are usually required up front, separate "Results" and "Discussion" sections are reserved for the conclusion.

VOICES FROM ACROSS THE CURRICULUM

Avoiding Strong Claims in the Introduction: An Economics Professor Speaks

I advise students to be careful about how they set up tentative conclusions in the opening paragraph, because these can easily slide into a prejudging of the question at hand. I would be more comfortable with a clear statement of the prevailing views held by others. For example, a student could write on the question, "Was Franklin Delano Roosevelt a Keynesian?" What purpose would it serve in an opening paragraph to reveal without any supporting discussion that FDR was or was not a Keynesian?

What might be better would be to say that in the public mind FDR is regarded as the original big spender, that some people commonly associate New Deal policies with general conceptions of Keynesianism, but that there may be some surprises in store as that common notion is examined.

In sum, I would discourage students from making strong claims at or near the beginning of a paper. Let's see the evidence first. We should all have respect for the evidence. Strong assertions, bordering on conclusions, too early on are inappropriate.

—JAMES MARSHALL, PROFESSOR OF ECONOMICS

Some Good Ways to Begin a Paper

All of the following ways to begin a paper enable you to play an ace, establishing your authority with your readers, without having to play your whole hand. They offer a starting position, rather than a miniaturized version of the entire paper. Remember that the aim of the introduction is to answer the question, Why does what I'm about to say matter? What makes it especially interesting or revealing, and in what context? Here are a few methods of accomplishing this aim.

CHALLENGE A COMMONLY HELD VIEW This move provides you with a framework against which to develop your ideas; it allows you to begin with some back pressure, which will help you to define your position. Because you are responding to a known point of view, you have a ready way of integrating context into your paper. As the economics professor notes of the FDR example, until we understand what the prevailing view is on FDR, it is pointless to start considering whether or not he was a Keynesian.

BEGIN WITH A DEFINITION Beginning with a definition is a reliable way to introduce a topic, so long as that definition has some significance for the discussion to follow. If the definition doesn't do any conceptual work in the introduction, the definition gambit becomes a pointless cliché.

You are most likely to avoid cliché if you cite a source other than a standard dictionary for your definition. The reference collection of any academic

library contains a range of discipline-specific lexicons that provide more precise and authoritative definitions than Webster ever could. A useful alternative is to quote a particular author's definition of a key term because you want to make a point about his or her particular definition: for example, "Although the *Dictionary of Economics* defines Keynesianism as XYZ, Smith treats only X and Y (or substitutes A for Z, and so forth)."

LEAD WITH YOUR SECOND-BEST EXAMPLE Another versatile opening gambit, where disciplinary conventions allow, is to use your 'second-best example' to set up the issue or question that you later develop in-depth with your best example. This gambit is especially useful in papers that proceed inductively on the strength of representative examples, an organizational pattern common in the humanities. As you are assembling evidence in the outlining and pre-writing stage, in many cases you will accumulate a number of examples that illustrate the same basic point. For example, several battles might illustrate a particular general's military strategy; several primaries might exemplify how a particular candidate tailors his or her speeches to appeal to the religious right; several scenes might show how a particular playwright romanticizes the working class; and so on.

Save the best example to receive the most analytical attention in your paper. If you were to present this example in the introduction, you would risk making the rest of the essay vaguely repetitive. A quick close-up of another example will strengthen your argument or interpretation. By using a different example to raise the issues, you suggest that the phenomenon exemplified is not an isolated case and that the major example you will eventually concentrate upon is, indeed, representative.

EXEMPLIFY THE TOPIC WITH A NARRATIVE The narrative opening, an occasional gambit in the humanities and social sciences, introduces a short, pertinent, and vivid story or anecdote that exemplifies a key aspect of a topic. Although generally not permissible in the formal reports assigned in the natural and social sciences, narrative openings turn up in virtually all other kinds of writing across the curriculum.

As the introduction funnels to its thesis, the readers receive a graphic sense of the issue that the writer will now develop nonnarratively. Nonnarrative treatment is necessary because by itself anecdotal evidence can be seen as merely personal. Storytelling is suggestive but usually does not constitute sufficient proof; it needs to be corroborated.

What Conclusions Do: The Final "so what?"

Like the introduction, the conclusion has a key social function: it escorts the readers out of the paper, just as the introduction has escorted them in. The concluding paragraph presents the paper's final "so what?"

Conclusions always state the thesis in its most fully evolved form (See "The Conclusion: Returning the Thesis to the Larger Conversation" in Chapter 6.) In addition, the conclusion usually makes all of the following moves:

- *It comes full circle.* That is, it creates a sense of closure by revisiting the way the paper began. Often it returns to some key phrase from the context established in the introduction and updates it.
- *It pursues implications.* That is, it reasons from the particular focus of the essay to broader issues, such as the study's practical consequences or applications, or future-oriented issues, such as avenues for further research. To unfold implications in this way is to broaden the view from the here and now of the paper by looking outward to the wider world and forward to the future.
- *It identifies limitations.* That is, it acknowledges restrictions of method or focus in the analysis, and qualifies the conclusion (and its implications) accordingly.

These moves are quite literally movements—they take the thinking in the essay, and the readers with it, both backward and forward. The backward thrust we call *culmination*; the forward thrust we call *send-off*.

When you culminate a paper, you bring together things that you have already said, establishing their connection and ascending to one final statement of your thinking. The word "culminate" is derived from the Latin "*columen*," meaning "top or summit." To culminate is to reach the highest point, and it implies a mountain (in this case, of information and analysis) that you have scaled.

The climactic effects of culmination provide the basis for the send-off. The send-off is both social and conceptual, a final opening outward of the topic that leads the reader out of the paper with something further to think about. Here the thinking moves beyond the close analysis of data that has occupied the body of the paper into a kind of speculation that the writer has earned the right to formulate.

Simply put, you culminate with the best statement of your big idea, and your send-off gets you and the reader out of the paper. The professors in the following Voices from Across the Curriculum suggest ways of ending on a note of expanded implication, bringing the paper's more focused analysis to a larger perspective.

VOICES FROM ACROSS THE CURRICULUM

Beyond Restatement: A Business and a Political Science Professor Speak

I tell my students that too many papers "just end," as if the last page or so were missing. I tell them the importance of ending a work. One could summarize main points, but I tell them this is not heavy lifting.

I believe the ending should be an expansion of possibilities, sort of like an introduction to some much larger "mental" paper out there. I sometimes encourage students to see the concluding section as an option to introduce ideas that can't be dealt with now. Sort of a "Having done this, I would want to explore boom, boom, boom if I were to continue further." Here the students can critique and recommend ("Having seen 'this,' one wonders 'that'").

—FREDERICK NORLING, PROFESSOR OF BUSINESS

The conclusion does not appear simply as a restatement of a thesis, but rather as an attempt to draw out its implications and significance (the "so WHAT?"). This is what I usually try to impress upon students. For instance, if a student is writing on a particular proposal for party reform, I would expect the concluding paragraph to consider both the significance of the reform and its practicality.

I should note that professional papers often indicate the tentativeness of their conclusions by stressing the need for future research and indicating what these research needs might be. Although I haven't tried this, maybe it would be useful to have students conclude papers with a section entitled "For Further Consideration" in which they would indicate those things that they would have liked to have known but couldn't, given their time constraints, the availability of information, and lack of methodological sophistication. This would serve as a reminder of the tentativeness of conclusions and the need to revisit and revise arguments in the future (which, after all, is a good scholarly habit).

—JACK GAMBINO, PROFESSOR OF POLITICAL SCIENCE

Solving Typical Problems in Conclusions

The primary challenge in writing conclusions lies in finding a way to culminate your analysis without claiming either too little or too much. There are a number of fairly common problems to guard against if you are to avoid either of these two extremes.

Redundancy: In Chapter 4 we lampooned an exaggerated example of the five-paragraph form for constructing its conclusion by stating "Thus, we see" and then repeating the introduction verbatim. The result is redundancy. It's a good idea to refer back to the opening, but it's a bad idea just to reinsert it mechanically. Instead, reevaluate what you said there in light of where you've ended up, repeating only key words or phrases from the introduction. This kind of selective repetition is a desirable way of achieving unity and will keep you from making one of two opposite mistakes—either repeating too much or bringing up a totally new point in the conclusion.

Raising a Totally New Point: Raising a totally new point can distract or bewilder a reader. This problem often arises out of a writer's praiseworthy desire to avoid repetition. As a rule, you can guard against the problem by making sure that you have clearly expressed the conceptual link between your central conclusion and any implications you may draw. An implication is not a totally new point but rather one that follows from the position you have been analyzing.

Similarly, although a capping judgment or send-off may appear for the first time in your concluding paragraph, it should have been anticipated by the body of your paper. Conclusions often indicate where you think you (or an interested reader) may need to go next, but you don't actually go there. In a paper on the economist Milton Friedman, for example, if you think that another economist offers a useful way of critiquing him, you probably should not introduce this person for the first time in your conclusion.

Overstatement: Many writers are confused over how much they should claim in the conclusion. Out of the understandable (but mistaken) desire for a grand (rather than a modest and qualified) culmination, writers sometimes overstate the case. They assert more than their evidence has proven or even suggested. Must a conclusion arrive at some comprehensive and final answer to the question that your paper has analyzed?

Depending on the question and the disciplinary conventions, you may need to come down exclusively on one side or another. In a great many cases, however, the answers with which you conclude can be more moderate. Especially in the humanities, good analytical writing seeks to unfold successive layers of implication, so it's not even reasonable for you to expect neat closure. In such cases, you are usually better off qualifying your final judgments, drawing the line at points of relative stability.

Anticlimax: The end of the conclusion is a "charged" site, because it gives the reader a last impression of your paper. If you end with a concession—an acknowledgment of a rival position at odds with your thesis—you risk leaving the reader unsettled and possibly confused. The term for this kind of letdown is "anticlimax." In most cases, you will flub the send-off if you depart the paper on an anticlimax.

There are many forms of anticlimax besides ending with a concession. If your conclusion peters out in a random list or an apparent afterthought or a last-minute qualification of your claims, the effect is anticlimactic. And for many readers, if your final answer comes from quoting an authority in place of establishing your own, that, too, is an anticlimax.

A useful rule for the introduction is to play an ace but not your whole hand. In the context of this card-game analogy, it is similarly effective to save an ace for the conclusion. In most cases, this high card will provide an answer to some culminating "so WHAT?" question—a last view of the implications or consequences of your analysis.

Introductions and Conclusions Across the Curriculum

Throughout the following discussion of disciplinary practices in introductions and conclusions, we quote first-hand advice from faculty colleagues at our college. You will notice differences in the guidelines that the various disciplines

offer, but you will also see that the jobs introductions and conclusions do are actually quite similar across the curriculum.

Introductory Paragraphs in the Humanities

Here is a typical set of guidelines for writing introductory paragraphs in a humanities paper—in this case, a poetry analysis in an English course. Introductions are not the same across all disciplines in the humanities, but much in the following guidelines is representative.

An introduction is not a conclusion. You do not need to announce, in short form, your whole argument. In English papers, the introductory paragraph is an opening gambit. The thesis you state at the end of paragraph one should be an idea, not a statement of fact. For example, you might offer an idea about what you think is the most important difference and/or similarity between the poem you have chosen to analyze and another poem. This statement will get qualified and expanded and tested in the paper. You should not simply march the statement through the paper and prove that you are right.

The intro offers readers some piece of your evidence—some data from your poem: perhaps a binary that you see in both poems or some other tendency of the language in both that you found interesting and that you think is worth exploring. The reader should come away from your opening paragraph knowing what you found interesting and worth pursuing and why.

Resist dumping a great lump of background into the intro. You should do some contextualizing in the opening but don't overdo it. Stay focused on the poem and what you notice about the kind of thinking it is inviting us to do.

Resist what is known as "freshman omniscience"—recognizable by sweeping claims and a grandiose tone... "Since the beginning of time poets have been..."

The last sentence of the paragraph should make some kind of claim—probably a comparative claim about the relation between your two poems. This claim should not take the form of the standard tripartite thesis typical of the 5-paragraph form essay. Rather than offering three points, each of which would then get a paragraph or two, you want to set up a sequence of thought in which you try on various ways of understanding your subject.

Here are a couple of differences between science and humanities papers that are worth noting. In the sciences it is considered inappropriate to name and especially to criticize particular pieces of research or their authors. Writers in the humanities, however, are much more likely to name names, to quote other studies, and to be explicit on where these studies seem to fall short. Papers in the humanities often begin with a compressed account of who said what, why they may have said it, and what in it needs revising.

Writers in the humanities quote and then paraphrase key statements, rather than summarizing and paraphrasing without the original language, as is the rule in psychology and other science and social science writing. Because most writing in the humanities is grounded in textual analysis, humanities writers think

it important to attend to the actual language of other people's writing. Words and their meanings are data to humanities writers. It is a habit of mind in the humanities to always share the actual evidence with readers—the language being paraphrased and cited—rather than asking readers to take the writer's word for it.

Using Procedural Openings

In the interests of clear organization, some academic disciplines require students to include in the introduction an explanation of how the paper will proceed. Such a general statement of method and/or intention is known as a *procedural opening*. Among the disciplines in which you are most likely to find this format are philosophy, political science, and sociology. The danger of procedural openings is that the writer will avoid making a claim at all.

The statement of a paper's plan is not and cannot take the place of a thesis (an idea about the topic that the paper will explore and defend). Consider the deficiencies of the following procedural opening.

In this paper I will first discuss the strong points and weak points in America's treatment of the elderly. Then I will compare this treatment with that in other industrial nations in the West. Finally, I will evaluate the various proposals for reform that have been advanced here and abroad.

This paragraph identifies the subject, but it neither addresses why the subject matters nor suggests the writer's approach. Nor does it provide background to the topic or suggest a hypothesis that the paper will pursue. In some kinds of essays, especially those that move (inductively) from specific observations to more general claims, there is little need for procedural openings, with their declaration of intention and method at the outset. As the following Voice from Across the Curriculum reveals, however, the introductory "road map" is a common strategy in some disciplines.

VOICES FROM ACROSS THE CURRICULUM

Using Procedural Openings: A Political Science Professor Speaks

I encourage students to provide a "road map" paragraph early in the paper, perhaps the second or third paragraph. (This is a common practice in professional journals.) The "road map" tells the reader the basic outline of the argument. Something like the following: "In the first part of my paper I will present a brief history of the issue. . . . This will be followed by an account of the current controversy. . . . Part III will spell out my alternative account and evidence. . . . I then conclude. . . ." I think such a paragraph becomes more necessary with longer papers.

—JACK GAMBINO, PROFESSOR OF POLITICAL SCIENCE

Putting an Issue or Question in Context

Rather than leaping immediately to the paper's issue, question, or problem, most effective introductions provide some broader context to indicate why the

issue matters. Things don't just "mean" in the abstract; they mean in particular contexts.

In the following Voice from Across the Curriculum, Political Science Professor, Jack Gambino, notes the usefulness of anomalies for contextualizing papers in his discipline. The discovery of an anomaly, something that does not fit with conventional ways of thinking, can serve as a useful point of departure in a paper that goes on to revise an existing theory or opinion.

VOICES FROM ACROSS THE CURRICULUM

Providing an Introductory Context: A Political Science Professor Speaks

An introduction is not simply the statement of a thesis but also the place where the student needs to set a context, a framework that makes such a thesis statement interesting, timely, or in some other way important. It is common to see papers in political science begin by pointing out a discrepancy between conventional wisdom (what the pundits say) and recent political developments, between popular opinion and empirical evidence, or between theoretical frameworks and particular test cases. Papers, in other words, often begin by presenting *anomalies*.

I encourage students to write opening paragraphs that attempt to elucidate such anomalies by:

1. Stating the specific point of departure: are they taking issue with a bit of conventional wisdom? Popular opinions? A theoretical perspective? This provides the context in which a student is able to "frame" a particular problem, issue, and so forth.
2. Explaining why the wisdom/opinion/theory has become problematic or controversial by focusing on a particular issue, event, test case, or empirical evidence.
3. Formulating a brief statement of the tentative thesis/position to be pursued in the paper. This can take several forms, including the revising of conventional wisdom/theory/opinion, discarding it in favor of alternative conceptions, or calling for redefinition of an issue and question.

—JACK GAMBINO, PROFESSOR OF POLITICAL SCIENCE

In the following Voice from Across the Curriculum, Political Science Professor, Chris Borick, explains effective and less effective ways of stating research questions and hypotheses in the introduction.

VOICES FROM ACROSS THE CURRICULUM

Framing Research Questions and Hypotheses: A Political Science Professor Speaks

Different fields within Political Science—legal writing, political theory, political policy, and behavior—prescribe different forms of writing. Political policy and political behavior papers adhere to a version of the format used in science writing. This format has six parts: statement of the research question, literature review (context), statement

of hypothesis, measurement of variables, description of tests, and analysis of findings. The literature review describes the conversation that is going on in the field on the paper's topic. It explains what others know. The research question tells readers what the writer is trying to do. The hypothesis states a claim that is specific enough to test.

The research question sets up the hypothesis; it is the point from which everything flows. Consider the following two versions of a research question on capital punishment. 1) In this study I seek to examine the capital punishment laws used at the state level. 2) In this study I seek to explain why some states adopt capital punishment and others do not. The second version is clearly better. It gives much better direction.

The hypothesis needs to indicate some direction for the research. Although general in scope, it must be specific enough to test. Here again are two examples. Which do you think would make the better hypothesis? 1) The greater the percentage of college educated individuals in a state, the more likely that state will be to allow same sex marriage. 2) The more educated a society, the more liberal it will be.

—CHRIS BORICK, PROFESSOR OF POLITICAL SCIENCE

Writing Introductions in the Sciences

In the following Voices from Across the Curriculum, Biochemistry Professor, Keri Colabroy, and Psychology Professors, Laura Edelman and Mark Sciutto, address the challenges of introducing and contextualizing research in science writing.

VOICES FROM ACROSS THE CURRICULUM

Introductions in the Sciences: Three Professors Speak

In scientific papers, introductions serve two purposes:

1. to orient your readers to the scientific context of your work while showing them the inherent need for new (your) information to solve an *uncertainty* or *problem*, something you or the community doesn't quite understand. (In *Writing Analytically*, the prompts "interesting, significant, or strange" focus writers on problems and areas of uncertainty.)
2. to state succinctly what the paper/study has accomplished and what that means for the big picture you outlined in point #1.

The introduction of a scientific paper is full of references to primary literature (other scientific papers). In most undergraduate science courses, students are not asked to write the introduction section. Instead, the professor provides a paraphrase of the question/problem that the experiment is meant to solve.

—KERI COLABROY, PROFESSOR OF BIOCHEMISTRY

The introduction is one of the hardest sections to write. In the introduction, students must summarize, analyze, and integrate the work of numerous other authors and use that to build their own argument.

The task is to read each article and *summarize* it in their own words. The key is to analyze rather than just repeat material from the articles so as to make clear the connections among them. (It is important to note that experimental psychologists almost never use direct quotes in their writing. Many of my students have been trained to use direct quotation for their other classes, and so I have to spend time explaining how to summarize without directly quoting or plagiarizing the work that they have read.)

Finally, in the introduction the students must show explicitly how the articles they have summarized lead to the hypothesis they have devised. Many times the students see the connection as implicitly obvious, but I require that they explicitly state the relationships between what they read and what they plan to do.

—LAURA EDELMAN, PROFESSOR OF PSYCHOLOGY

The format of the empirical paper in Psychology resembles an hour glass. It starts reasonably broad, narrows, and then broadens again to the larger perspective: “Now that we know this, where can we go with it? What are the implications?” The introduction is especially difficult to write because it must contextualize the new research by pulling together a lot of reading from a variety of sources. This part of the introduction, the literature review, answers the question, “What do we know?”

In order to efficiently locate the new study in the context of others’ work on the subject, writers must **integrate** citations. Rather than summarize what Johnson found and then what Smith found and then what Moore found, the writer needs to bring these together into a more concise summary. All three studies might be summarized and cited in one paragraph or even a single sentence. As a rule of thumb, citations should include more than one source. Single citations don’t allow enough integration.

—MARK SCIUTTO, PROFESSOR OF PSYCHOLOGY

Integration of Citations in a Literature Review: A Brief Example

Note that in the following paragraph from a 1999 article in *Personality and Social Psychology Bulletin* the citations (in parentheses) include more than one study:

Self-presentational motives play a role in a variety of potentially dangerous health-related behaviors, including behaviors that lead to risk of HIV infection; accidental death and injury; and alcohol, tobacco, and drug use (Leary, Tchividjian, & Kraxberger, 1994; Martin, Leary, & Rejeski, in press). The desire to be perceived as a risk-taker, brave, or one of the crowd (or conversely, concerns about being viewed as overly cautious or neurotic) may lead people to take chances with their health to create the desired image. (Denscombe, 1993; Finney, 1978)

Introductions in Scientific Papers: A Brief Example

The following example comes from a set of excerpted introductions that Biochemistry Professor, Keri Colabroy, uses to teach her students how to write concise, focused sentences of two types: Type #1: sentences that orient readers

to the scientific context of a new study while also showing the need for it, and Type #2: sentences that succinctly state what the paper/study has accomplished. The sentences come from a paper published in *Nature Chemical Biology* 2006.

#1 Although the antitumor activity of these two compounds has been shown to involve binding to microtubules, the targets and modes of actions for many other bioactive cyanobacterial metabolites remain elusive.

Dr. Colabroy comments: *This is a great sentence.—You can see the tension. Some activity has been shown, but there is still something we don’t understand . . . and that is the problem this paper will solve.*

#2 Here we examine the mode of action of apratoxin A using a number of approaches based on functional genomics, including mRNA expression analysis and genome-wide, arrayed cDNA overexpression. These and other studies suggest that apratoxin A acts in part by blocking the FGFR signaling pathway.

Dr. Colabroy comments: *The use of “here” focuses your attention on the action that immediately follows—“we examine.” That is different from “we found” or “we propose,” and it implies that the authors didn’t really have a hypothesis going in. They were just trying to learn some stuff, and in the process, they came up with some “implications” from the data.*

Writing Conclusions in the Sciences: The Discussion Section

As is the case with introductions, the conclusions of reports written in the natural sciences and psychology are regulated by formalized disciplinary formats. Conclusions, for example, occur in a section entitled “Discussion.” There the writer analyzes conclusions and qualifies them in relation to some larger experimental context, “the big picture.”

First specific results are interpreted (but not restated), and then their implications and limitations are discussed. At the end, the writer should rephrase the original research question and discuss it in light of the results presented. It is at this point that alternative explanations may be considered and new questions may be posed.

In the following Voices from Across the Curriculum, a Psychology Professor and a Biochemistry Professor explain how the Discussion section of a scientific paper locates its conclusions in the context of other research—that which came before and that which will follow.

VOICES FROM ACROSS THE CURRICULUM

Writing Conclusions in the Sciences: Two Professors Speak

The conclusion occurs in a section labeled “Discussion” and, as specified by the *Publication Manual of the American Psychological Association*, is guided by the following questions:

What have I contributed here?

How has my study helped to resolve the original problem?

What conclusions and theoretical implications can I draw from my study?

In a broad sense, a particular research report should be seen as but one moment in a broader research tradition that *preceded* the particular study being written about and that will *continue after* this study is published. And so the conclusion should tie this particular study into both previous research considering implications for the theory guiding this study and (when applicable) practical implications of this study. One of the great challenges of writing a research report is thus to place this particular study within that broader research tradition. That's an analytical task.

—ALAN TJELTVEIT, PROFESSOR OF PSYCHOLOGY

The Discussion section is where the scientist finally gets to analyze the data. The previous two sections of a science paper—Methods and Results—report rather than analyze. The discussion section is not a summary; rather, the writer makes qualified claims and backs them up with evidence (data). Analysis of the data tells readers what the study found in the context of current knowledge in the field and the researcher's expectations. The discussion section completes the frame set up by the introduction by arguing for the significance of the study within its scientific context.

The paper's conclusions, which usually appear in the last paragraph of the Discussion, always look back and then forward—first back to previous research and then forward to remaining questions. The conclusion explains how questions have been answered and how knowledge in the field might be changed because of the new information.

—KERI COLABROY, PROFESSOR OF BIOCHEMISTRY

Conclusions in Scientific Papers: A Brief Example

The following example is part of the discussion/conclusion section of a scientific paper.

As you read this sample Discussion/Conclusion section of a scientific paper, refer back to Dr. Colabroy's preceding comments.

The rapid and sustained elevations in 2-AG induced by JZL 184 were accompanied by an array of CB1-dependent behavioral effects, including analgesia, hypomotility, and hypothermia. This collection of phenotypes qualitatively resembles those induced by direct CB1 agonists. Overall these data suggest that MAGL-regulated 2-AG pathways endogenously modulate several behavioral processes classically associated with the pharmacology of cannabinoids . . .

In summary, we believe that the properties of JZL184 warrant inclusion of this compound among the growing arsenal of efficacious and selective pharmacological probes used to examine the endocannabinoid system. JZL 184 could itself serve as a lead scaffold for the development of such dual inhibitors, given that at high concentrations this compound inhibited both MAGL and FAAH without affecting other brain serine hydrolases.

VOICES FROM ACROSS THE CURRICULUM

Ethos and Style in Scientific Writing: A Biochemistry Professor Speaks

Word choice in scientific papers—especially the choice of verbs—is important. Scientific writing never “proves,” for example. It “implies” and “indicates.” The science writer chooses verbs to make carefully qualified claims based on an accumulation of evidence.

Scientific writing is corporate, by which I mean that scientific writers speak to and about the community of other science writers. To name a particular scientist is considered pretentious. It is appropriate to point out inconsistencies in thinking as in, “a lot of work has been done here, but we still don't understand X.” It is not considered appropriate to locate shortcomings in the work of particular scientists.

—KERI COLABROY, PROFESSOR OF BIOCHEMISTRY

The Idea of the Paragraph

Throughout this section of the chapter, we will focus on what are sometimes called “body” paragraphs, as opposed to the more special-function paragraphs that serve as the beginnings and ends of papers.

It is useful to think of any piece of writing as consisting of parts or blocks. The paragraph is a fundamental building block, bigger than the sentence, smaller than the section or paper. Paragraphs can be thought of by analogy with the paper. Like papers, paragraphs have parts: they make opening gambits, they put forward evidence and analyze it, and they arrive at some kind of summarizing or culminating closure. They have, in short, a beginning, a middle, and an end. But unlike the paper, the paragraph does not stand alone as an independent entity. For a paragraph to be effective, readers need to be able to understand its role in unfolding the thinking of the paper as a whole.

The two primary characteristics of virtually all strong paragraphs are unity and development.

- **unity:** all the sentences in the paragraph should be related to some central idea or focus. Normally, the sentence that serves this function in the paragraph is the topic sentence.
- **development:** the sentences in a paragraph need to connect to each other in some way; a paragraph needs to go somewhere, to build. Normally, the sentences in a paragraph either offer a series of observations about the main idea or build one upon the next to offer a more sustained analysis of one element of the main idea.

Notice that we don't say here that a paragraph offers a claim plus examples and reasons. This model of the paragraph is true in some cases, but paragraphs typically do more than make simple claims and then back them up with one or more examples.

Once you begin paying attention to paragraphs, you will see that they are far less uniform in their shapes and procedures than you may have been taught to believe. The paragraph police will not haul you away for producing a paragraph that lacks a topic sentence, or places it at the end of the paragraph instead of the front, or contains several claims instead of one, or delays the substantiating evidence till later. Nonetheless, most of the paragraphs you encounter—and most that you should write—have unity and development. They are about one thing, and they tell you why it is important.

How Long?: Paragraphs, Readers, and Writers

Paragraphing is a kindness to your reader, since it divides your thinking into manageable bites. If you find a paragraph growing longer than half a page—particularly if it is your opening or second paragraph—find a place to make a paragraph break. More frequent paragraphing provides readers with convenient resting points from which to relaunch themselves into your thinking. In addition, paragraph indentations allow readers to scan essays, searching for connecting words and important ideas.

Long paragraphs are daunting for both readers and writers. When writers try to do too much in a single paragraph, they often lose the focus and lose contact with the larger purpose or point that got them into the paragraph in the first place. Remember that old rule about one idea to a paragraph? Well, it's not a bad rule, though it isn't exactly right because sometimes you need more space than a single paragraph can provide to lay out a complicated phase of your overall argument. In that case, just break wherever it seems reasonable to do so in order to keep your paragraphs from becoming ungainly. Two paragraphs can be about the same thing, the first half and then the second half. This paragraph, for example, might have been easier to process if we had broken it right before the question about that old rule.

A short paragraph will always provide emphasis, for which most readers will thank you.

Paragraphs are a relief not just for your readers: they also give the writer a break. When you draft, start a new paragraph whenever you feel yourself getting stuck: it's the promise of a fresh start. Paragraph breaks are like turning a corner to a new view, even when the thinking is continuous. They also force the writer to make transitions, overt connections among the parts of his or her thinking, and to state or restate key ideas.

It can be extraordinarily useful to draft a paper in phases, as a series of paragraphs:

- Break up the larger interpretation or argument into more manageable pieces.
- Give yourself space to think in short sections that you can then sequence.
- Clean up your thinking in revision by dividing its sections or phases into paragraphs.

Paragraphs need to justify their existence. A paragraph break should remind you to check that you have suggested to the readers why they need to know this information. Ask yourself why you are telling them what you are telling them. How does the thinking in the paragraph relate to the overall idea that your paper is developing? A good way to check if your paragraph is really advancing your claims is to ask and answer "so what?" at the end of the paragraph.

Paragraphs Across the Curriculum: Some Common Patterns

The simplest way of thinking about paragraph organization draws on a slightly extended version of what are known as the traditional rhetorical modes: Exemplification, Narration, Description, Process, Comparison/Contrast, Classification/Division, Definition, Cause/Effect, Problem/Solution, and, of course, Analysis.

You have been studying the characteristic shape of analytical thinking throughout this book. It consists of seeing the parts of something in relation to the whole. In practice, this means finding a significant pattern of detail and explaining what this pattern reveals about the nature and purpose of whatever it is you are studying. The practice we call 10 on 1 (see Chapter 4) is typical of analytical paragraphs. It consists of close scrutiny of a single representative example wherein the writer notices as much as possible about the example and then interprets his or her observations by asking and answering the question "so what?"

Because analysis typically focuses on relationships among the parts and between those parts and the whole, classification and division are well-suited to analytical writing. In the organizational pattern called division, the writer breaks a subject into its component parts. Classification explains how the parts relate to each other by putting them into categories. In practice, classification and division tend to occur together, often in conjunction with definition. When we define something, we locate its defining traits, the features that make it what it is.

Although most paragraphs employ a mix of these modes of organization, the patterns are usually easy to see. For purposes of illustration, we will focus on narrative organization. A surprising amount of writing in the disciplines is narrative, which is to say that writers often find themselves needing to explain sequences of action (as in the methods and results sections of a scientific paper or lab report) or events or behaviors or ideas. Notice, for example, how profoundly narrative the writing is in the following excerpt from a lab report.

A set of electrophilic aromatic substitution reactions was performed using two monosubstituted benzenes so as to describe substitution patterns as a function of substrate. Samples of toluene and ethylbenzene each underwent a nitration via a 1:1 mixture of sulfuric and nitric acid. The acid mixture formed a strongly electrophilic nitronium ion which attacked the monosubstituted benzene ring and replaced a proton. Upon mixing the reagents, both nitration reactions turned yellow. The toluene

reaction darkened somewhat over the reaction period, while the ethylbenzene reaction turned brown. The color change is evidence of a reaction occurring. The products of each reaction were isolated via a liquid extraction with MTBE and dried. The isolated products were analyzed via GC-MS (gas chromatography – mass spectroscopy), which separates compounds based on their volatility. This was used to both identify the products and determine their respective ratios.

A good piece of writing—at the level of the paragraph as well as at the level of the paper as a whole—tells a story. It explains how and why the writer came to focus on an issue or question or problem. It also narrates for readers how the writer came to understand the meaning and significance of his or her evidence.

Linking the Sentences in Paragraphs: Minding the Gaps

It helps to think of the space between the period at the end of a sentence and the beginning of the next sentence as a gap that the reader has to cross. Start thinking in this way as you follow the train of thought in this paragraph and those that follow it. Keep asking yourself: what is the connection between each sentence and the one that follows it? What keeps the reader from falling out of the paper at the gaps between sentences, losing sight of the thought connections that make a paragraph more than just a collection of sentences?

In many paragraphs, the connections between and among sentences are made apparent by the repetition of **key words**. This idea of key words brings us back to a core principle of this book: that both writers and readers make meaning by locating significant patterns of repetition and contrast. What is the pattern of repeated words in the paragraph above this one, for example? Notice the repetition of the key word “gap,” which goes with the idea of falling and which is in opposition to such words as “connection” and “train of thought.” The other connecting feature of the paragraph comes with its repeated use of questions. The paragraph you are now reading gets its sense of purpose from the previous paragraph’s questions. Here we start answering them.

Sometimes (but not always) the connecting logic that helps readers negotiate the gaps between sentences must be made explicit. So, for example, some sentences begin with the words, “So, for example.” The function of this type of connection is illustration. Some other words that operate in this gap-bridging way are “thus,” “furthermore,” “in addition,” “similarly,” “in other words,” and “on the contrary.”

When the organizing principle of a paragraph is sufficiently evident, explicit transitional words are often not needed. If parallelism is the paragraph’s organizing principle, for example, readers will be able to see the relationship among the paragraph’s sentences without a lot of repetition of connecting words.

What a Paragraph Does: The Paragraph as Movement of Mind

The key to understanding how to write paragraphs, as well as how to analyze what you read in them, is to focus on what the various sentences in a paragraph do. To follow what a paragraph does is to follow its succession of sentences as a movement of mind, an unfolding of consciousness on the page that conveys to readers the relationships among its various pieces of information.

The sentences in a paragraph have different jobs; there is a distribution of labor. To see this element of paragraphing, it is essential that you “look beyond content”: that is, that you focus on what the sentences are doing, not just on what they are saying. In Chapter 4, Reasoning from Evidence to Claims, we asked you to distinguish which sentences in a paragraph were evidence and which were claims, and to mark these with an E or a C. Those are two functions of sentences in paragraphs—two tasks that sentences in a paragraph can perform.

Paragraph Structure #1: TOPIC SENTENCE, RESTRICTION, ILLUSTRATION One model for thinking about paragraph structure comes from the rhetorician Alton Becker: Topic sentence (T), Restriction (R), and Illustration (I). The topic sentence states some kind of claim—an idea that the paragraph will develop in some way. This may or may not appear as the first sentence of the paragraph, and there may be more than one claim in the paragraph, although one of these is usually primary. Restriction limits the claim in some way. Illustration supplies examples in support of the claim.

The TRI model does not cover everything that goes on in various kinds of paragraphs, but it is a good way to start looking at paragraphs in order to begin thinking about what the sentences do. Here is a somewhat expanded list of jobs that sentences may do inside paragraphs.

WHAT SENTENCES DO INSIDE PARAGRAPHS

- T = topic sentence -> announces the main idea of the paragraph
- R = restriction -> qualifies, further defines, limits claims; happens at various points in the paragraph
- P = paraphrasing -> restates claims and evidence to analyze them
- I = illustration -> provides substantiating evidence
- EXP = explains the illustrations -> draws out meaning of evidence
- Th = thesis restatement -> offers versions of an evolving thesis
- Tr = transitional wording -> links sentences, connects ideas inside paragraph but also connects paragraph to what precedes and follows it
- SW = ANSWERS “SO WHAT?” -> tells readers the purpose of the paragraph, why the writer bothered to tell them this

Let’s look at a paragraph to see what some of the sentences are doing. We have labeled some of the sentences (in square brackets) according to our expanded version of Becker’s marking scheme.

[T:] Armin Schnider, a neurologist from the Cantonal University Hospital in Geneva, Switzerland, says that the vast majority of confabulations he has heard from his patients over the years relate directly to their earlier lives. [I:] One of his patients, a retired dentist, worried while in hospital that he was keeping his patients waiting. [I:] Another, an elderly woman, talked regularly about her baby in the present tense. [EXP:] Most of these patients had damage to the temporal lobes of the brain, particularly the memory regions of the hippocampus, so it seemed likely that they had somehow lost the ability to make new memories and were retrieving old ones instead. [EXP:] The intriguing thing was that they didn't realise these memories were old—they seemed convinced by their stories, and sometimes even acted on them. [SW:] So Schnider decided to study their memory in more detail. (Helen Phillips, "Everyday Fairytales," *New Scientist*, 7 October 2006)

TRY THIS 9.2: Label the Function of the Sentences in a Paragraph

One of the best ways to understand how paragraphs work—to apprehend them as tools of thought and to be able to deploy them to work for you—is to assign the abbreviations from page 255 to any paragraph in anything you have written or read, including this book.

Paragraph Structure #2: Observation -> Implication -> Conclusion One of the models described in this book for the analytical movement of mind is as follows: *Observation -> so what? -> implication -> so what? -> tentative conclusions*. This sequence goes beyond the simplest kind of paragraph development—idea + illustration—because it contains more of the writer's thinking on how he or she reasons to the claim from evidence. Explicitly drawing out the implications of evidence complicates, but also more accurately represents the process of thinking, than does simply attaching examples to the idea they support. Not all paragraphs in an analytical paper move in this way, but a significant number of them do. We reprint the following paragraph from Chapter One, adding annotations about what the paragraph does.

[Paragraph opens with empirical observation:] If you look closely at Camilo Vergara's photo of Fern Street, Camden, 1988, you'll notice a sign on the side of a dilapidated building that reads "Danger: Men Working - W. Hargrove Demolition."

[Implication:] Perhaps that warning captures the ominous atmosphere of these very different kinds of photographic documents by Camilo Vergara and Edward Burtynsky: "Danger: Men Working." Watch out—human beings are at work! **[Topic sentence:]** But the work that is presented is not so much a building-up as it is a tearing-down—the work of demolition. **[Qualification of claim:]** Of course, demolition is often necessary in order to construct anew: old buildings are leveled for new projects, whether you are building a highway or bridge in an American city or a dam in the Chinese countryside.

[Paraphrasing—interpretive restatement:] You might call modernity itself, as so many have, a process of creative destruction, a term used variously to describe modern art, capitalism, and technological innovation. **[Topic sentence:]** The photographs in this exhibit, however, force us to pay attention to the "destructive" side of this modern equation. **[Writer asks so what? and concludes:]** What both Burtynsky and Vergara do in their respective ways is to put up a warning sign—they question whether the reworking of our natural and social environment leads to a sustainable human future. **[Restatement:]** And they wonder whether the process of creative destruction may not have spun recklessly out of control, producing places that are neither habitable nor sustainable. **[Supporting observation:]** In fact, a common element connecting the two photographic versions is the near absence of people in the landscape. **[Observation:]** While we see the evidence of the transforming power of human production on the physical and social environment, neither Vergara's urban ruins nor Burtynsky's industrial sites actually show us "men working." **[Observation:]** Isolated figures peer suspiciously out back doors or pick through the rubble, but they appear out of place. **[Writer asks so what? and concludes in reference to the paragraph's opening observation:]** It is this sense of displacement—of human beings alienated from the environments they themselves have created—that provides the most haunting aspect of the work of these two photographers. (Jack Gambino, "Demolition Zones: Contemporary Photography by Edward Burtynsky and Camilo Jose Vergara")

Paragraph Structure #3: Coordinate and Subordinate Paragraphs Here is a third way of thinking about how paragraphs develop. In his influential essay, "A Generative Rhetoric of the Paragraph," Francis Christensen defines the topic sentence as "the one the other sentences depend from, the one they develop or amplify, the one they are a comment on" (*Notes Toward a New Rhetoric*, 1967, page 80). Christensen posits two kinds of paragraphs, coordinate and subordinate. In coordinate structures, all of the sentences following the topic sentence are equal in weight, or as he puts it, "all children of the same mother" (61).

Consider the following example of a (primarily) coordinate paragraph, taken from earlier in this chapter: Most of the sentences relate back to the topic sentence in some way. A number 1 indicates that the sentence is coordinate with the topic sentence, operating on the same level of importance and repeatedly clarifying the topic sentence. The number 2 indicates that the sentence is a subordinate structure, which will be explained below.

[T:] Paragraphs are a relief not just for your readers: they also give the writer a break.

- 1 When you draft, start a new paragraph whenever you feel yourself getting stuck: it's the promise of a fresh start.
- 1 Paragraph breaks are like turning a corner to a new view, even when the thinking is continuous.

- 1 They also force the writer to make transitions, overt connections among the parts of his or her thinking, and to state or restate key ideas.
- 1 Paragraph indentations allow readers to scan essays, searching for connecting words and important ideas.

The paragraph above best fits the pattern that Christensen calls coordinate because all of the sentences that come after the topic sentence “develop or amplify” it. Each offers reasons for thinking that paragraphs are a relief not just for readers but also for writers.

In what Christensen identifies as subordinate structures, each sentence clarifies or comments on the one before it, as for example in this short sequence that he cites:

- 1 The process of learning is essential to our lives.
- 2 All higher animals seek it deliberately.
- 3 They are inquisitive and they experiment.
- 4 An experiment is a sort of harmless trial run... (60).

Note how each sentence generates the one that follows it, rather than primarily relating back to the topic sentence.

Here is another example of a subordinate paragraph to contemplate:

- 1 Another startling conclusion from the science of consciousness is that the intuitive feeling we have that there's another executive “I” that sits in a control room of our brain, scanning the screens of the senses and pushing the buttons of the muscles, is an illusion.
- 2 Consciousness turns out to consist of a maelstrom of events distributed across the brain.
- 3 These events compete for attention, and as one process outshouts the others, the brain rationalizes the outcome after the fact and concocts the impression that a single self was in charge all along. (Steven Pinker, “The Mystery of Consciousness,” *Time*, January 19, 2007)

It is less important to be able to accurately and precisely locate each sentence in a paragraph as coordinate or subordinate than it is to begin to recognize that most paragraphs are some kind of mix of these two thought patterns. In practice, as Christensen observes, most paragraphs combine coordinate and subordinate sequences, although one of the two structures often predominates.

You do not need to ponder these relationships each time you write a new sentence in a paragraph, but, when you find yourself getting stuck in your writing, you can help yourself move forward by thinking about which sentence in the paragraph is the actual generator (or jumping off point) for the next one.

TRY THIS 9.3: Identify the Structure of a Paragraph

Take the paragraph below and apply the terms offered in this chapter (especially from page 255) to describe what various sentences do. Look for coordinate versus subordinate structures, but more specifically, label the mental moves performed by individual sentences. We have numbered the sentences to make the paragraph easier to work with.

1. White might not have succeeded in completely ridding his life of modern civilization, but Strunk's manual in White's hands became a successful primitivist tract.
2. Perhaps that seems like an overstatement, but in fact what counts as primitivist is flexible, Marianna Torgovnick reminded us, entirely dependent on what bugs one about the modern.
3. The key feature of primitivism, Torgovnick offered, is defining the primitive in reaction to the present: “Is the present too majestic? Primitive life is not—it is a precapitalist utopia in which only use value, never exchange value, prevails. Is the present sexually repressed? Not primitive life—primitives live life whole, without fear of the body” (8).
4. For Strunk and White, modern life was verbose and obscure, so primitive life must be brief, direct, and clear.
5. New things are bad things, new words the worst of all.
6. The words *offputting* and *ongoing* appear in the third and subsequent editions of *The Elements of Style* as “newfound adjectives, to be avoided because they are inexact and clumsy” (*Third Edition* 54).
7. The suffix *oriented* is lambasted as “a clumsy, pretentious device, much in vogue” (*Third Edition* 55).
8. *The Elements of Style* thus had become, over a period of nearly unprecedented technological progress, the perfect complement to the manual typewriter—a deliberate rejection of “books with permissive steering and automatic transitions” that made our lives easier but rendered our prose impotent and our character lax (xvi).
9. For impotence and laxity, *The Elements of Style* offers a program of stylistic and moral restitution, word by word.

(Catherine Prendergast, “The Fighting Style: Reading the Unabomber's Strunk and White,” *College English*, Volume 72, No 1, September 2009)

The Shaping Force of Transitions

The linkage between where you've been and where you're going is usually a point in your writing at which thinking is taking place. This is especially the case in the evolving rather than the static model of thesis development,

in which the writer continually updates the thesis as it moves through evidence.

- Thinking tends to occur at points of transition.
- A good transition articulates a paper's logical links—how each phase of the paper leads to the next.
- Too many additive transitions (“also,” “another example of”) produce papers that list, an overly loose form of organization

It is useful to think of transitions as *directional indicators*, especially at the beginnings of paragraphs but also within them. “And,” for example, is a plus sign. It indicates that the writer will add something, continuing in the same direction. The words “but,” “yet,” “nevertheless,” and “however” are among the many transitional words that alert readers to changes in the direction of the writer's thinking. They might indicate the introduction of a qualification, or a potentially contradictory piece of evidence, or an alternative point of view.

Some additive transitions do more work than “also” or “another.” The word “moreover” is an additive transition, but it adds emphasis to the added point. The transitional sequence “not only . . . but also” restates and then adds information in a way that clarifies what has gone before.

Too many additive transitions can pose a problem for your writing. A list is a slack form of organization, one that fails to identify how this is related to that. Although transitional wording such as “another example of” or “also” at the beginning of paragraphs does tell readers that a related point or example will follow, it does not specify that relationship beyond piling on another “and.” Essentially, these words just list.

If you find yourself relying on “another” and “also” at points of transition, force yourself to substitute other transitional wording that indicates more precisely the nature of the relationship with what has gone before in the paper. Language such as “similarly” and “by contrast” can sometimes serve this purpose. Often some restatement is called for to keep your reader on track—brief repetition is not necessarily redundant. A good transition reaches backward, telling where you've been, as the grounds for making a subsequent move forward.

The first step toward improving your use of transitions (and thereby, the organization of your writing) is to become conscious of them. If you notice that you are beginning successive paragraphs with “Another reason,” for example, you can probably conclude that you are listing rather than developing your ideas. If you notice a number of sentences that start with the vague referent “This,” you probably need to name the thing “This” refers to.

Think of transitions as echoes in the service of continuity. If you study the transitions in a piece, you will usually find that they echo either the language or the ideas of something that precedes them as they point to what is ahead.

TRY THIS 9.4: Tracking Transitions

Track the transitions in a piece of writing. Take a few pages of something you are reading (such as a short article) and circle or underline all of the directional indicators (transitions). Remember to check not only the beginnings of paragraphs but within them. Then, survey your markings. What do you notice now about the shape of the piece? This exercise is also useful for expanding your repertoire of transitional words to use in your own writing.

Assignments: From Paragraphs to Papers: Forms and Formats Across the Curriculum

1. **Infer the Format of a Published Article.** Often the format governing the organization of a published piece is not immediately evident. That is, it is not subdivided according to conventional disciplinary categories that are obeyed by all members of a given discourse community. Especially if you are studying a discipline in which the writing does not follow an explicitly prescribed format, such as history, literature, or economics, you may find it illuminating to examine representative articles or essays in that discipline, looking for an implicit format. You can usually discern some underlying pattern of organization: the formal conventions, the rules that are being followed, even when these are not highlighted.

The following assignment works well whether you tackle it individually or in a group. It can lead to a paper, an oral report, or both. First, you need to assemble several articles from the same or a similar kind of journal or magazine. “Journal” is the name given to publications aimed at specialized, usually scholarly, audiences, as opposed to general or popular audiences. *Time*, *Newsweek*, and *The New Yorker* are called “magazines” rather than “journals” because they are aimed at a broader general audience. *Shakespeare Quarterly* is a journal; *Psychology Today* is a magazine.

Having found at least three journal or magazine articles, study them in order to focus on the following question: *Insofar as there appears to be a format that articles in this journal adhere to, what are its parts?*

How, for example, does an article in this journal or magazine typically begin and end? Does there seem to be a relatively uniform place in which these articles include opposing arguments? You will, in other words, be analyzing the articles inductively (reasoning from particular details to general principles). Begin with the product and reason backward to the skeleton beneath the skin.

If you choose to work with a magazine rather than single articles, you should narrow your focus. You might focus on *Time* cover stories, on *The New Yorker's* “Talk of the Town” or another such recurring feature. Even

gossip columns and letters of advice to the lovelorn in teen magazines adhere to certain visible, though not explicitly marked, formats.

Write up your results. Cite particular language from at least two articles in support of your claims about the implicit format.

2. **Analyzing Introductions.** One of the best ways to learn about introductions is to gather some sample introductory paragraphs and, working on your own or in a small group, figure out how each one works, what it accomplishes.

Here are some particular questions you might pose:

- Why does the writer start in this way—what is accomplished?
- What kind of relationship does this opening establish with the audience and to what ends?
- How does the writer let readers know why the writing they are about to read is called for, useful, and necessary?
- Where and by what logic does the introduction funnel?

3. **Introductions and Audience.** Compare and contrast introductory paragraphs from a popular magazine with those from an academic journal aimed at a more specialized audience. Select one of each and analyze them to determine what each author assumes the audience knows. Where in each paragraph are these assumptions most evident? If you write out your analysis, it should probably take about a page, but this exercise can also be done productively with others in a small group.

4. **Analyzing Conclusions.** Find some examples of concluding paragraphs from published writing. First, compare the conclusion with the introduction, looking for the way the conclusion comes full circle. Which elements of the introduction are repeated to accomplish this? Then look for the statement of the essay's thesis in its final, culminating form. Finally, locate the send-off by finding implications and limitations that the writer has noted as part of his or her final "So what?" On the basis of your findings, write a few paragraphs in which you describe the writer's approach to conclusions.

At this point you will be ready to repeat this exercise with some of your own work. Only this time, rather than describing the writer's approach, write an improved version of one of your conclusions based on what you learned from your analysis.

CHAPTER 10

Style: Choosing Words, Shaping Sentences

Overview This chapter on style seeks to make you more conscious of the kinds of words and sentences you use and to expand your range of options. In the book's final chapter we will move from stylistic questions—a matter of choice—to common grammatical errors—a matter of correct versus incorrect forms. In this chapter, we'll be asking you to think rhetorically, that is, in terms of appropriate choices for particular contexts rather than right versus wrong.

A writer who is practiced at different ways of putting sentences together is a writer in touch with the key concept of sentence style, that there is a powerful link between the shape of a sentence and the shape of a thought. A sentence is the shape that thought takes. In order to enhance your awareness of sentence shapes, start analyzing sentences as you read. Keep an eye out for sentences you think are good rather than looking for things that are wrong, as school grammar exercises too often ask us to do. The chapter will provide you with the vocabulary and observation skills you need in order to figure out what makes a sentence good and what causes it to create the effects that it does.

Seeing Style as Inseparable From Meaning

Broadly defined, **style** refers to all of a writer's decisions in selecting, arranging, and expressing what he or she has to say. Getting the style right is not as simple as proofreading your paper in the late stages of drafting, looking for errors in grammar and punctuation. Whereas proofreading occupies the relatively comfortable linguistic world of simple right and wrong, stylistic considerations take place in the more exploratory terrain of making choices among more and less effective ways of formulating and communicating your meaning.

Many people mistakenly assume that style is separate from meaning. From this perspective, paying close attention to style seems finicky, or worse, cynical—a way of dressing up the content to sell it to readers or listeners. The problem with this view is that it subscribes to what we have earlier referred to as *the transparent theory of language*. This theory tries to locate meaning outside of language. It suggests that we somehow see *through* words to meaning and can then address that meaning without addressing the words that