18

Repetition and the Rhetoric of Visual Design

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This chapter examines the role repetition plays in professional writing. It reports on a longitudinal study of a developing professional writer who wrote, tested, and revised a tutorial for using the page layout program Aldus PageMaker. We observed how this writer ("Max") conceived, collected information from, and then reconceived the audience for his tutorial. In doing this, we noticed (a) how the writer relied on the repetition of design elements in the manual to provide a familiar look that he thought would comfort and assist his users; and (b) how the users' orientations toward the manual were influenced, both positively and negatively, by the design pattern he employed. We use these observations to argue that repetition is a vital element in the design of professional documents—but that its use has to be guided by rhetorical considerations. Repetition can help readers, but certain uses of it can also hinder understanding and learning. Writers need to learn the important difference between helpful and nonhelpful repetition.

Our chapter begins by providing some background into the theoretical perspective of rhetoric and professional writing, moves to considering design theory as rhetoric, and then focuses on the study of Max. We conclude with some observations about the desirability of "design repetition" (or "design consistency") in professional writing.

The Theoretical Perspective of Rhetoric and Professional Writing

Traditionally, composition has had little to say about repetition, other than the typical advice one can find in the ubiquitous and infamous handbooks, which treat repetition simply as reappearance of words and phrases within a given discourse. The stock advice concerning repetition in written discourse is to avoid it, because it wastes space and the reader's time, except when it might be desirable for emphasis. In the 1970s and 1980s, as the field of composition developed a sense of its own theoretical and historical roots in rhetoric (and as "composition" became "rhetoric and composition"), its focus changed to considering more the *effects* of various textual strategies, including repetition.

As a practical art (*techne*), rhetoric is concerned with how a discourse can be constructed to achieve a certain effect. Other forms of textual analysis describe discourse with the aim of building general theories or models of language use. To some extent, rhetoric does the same thing, but with an additional aim: Rhetoric applies such descriptions to the end of practice, and so complicates discourse studies. This means that rhetoric is a situational discipline: We can do a post hoc empirical analysis to determine what effect the letter we wrote yesterday had on its readers—but how will that analysis help us write another letter today? Obviously writers call upon prior experience, upon rhetorical principles and compositional practices to guide their efforts, but since writers are always in new situations, they must select and interpret prior experience to build new writing plans. Rhetoric and composition are interested in how writers build plans, or "representations of situated actions" (Suchman, 1987, p. 50).

Because rhetoric is a situated and applied art, it generates *principles*, not *rules*. The difference is significant: principles are always interpreted and adjusted for situations (and rarely survive in pure form); rules circumscribe absolute boundaries. "Rather than actions being determined by rules, actors effectively use the normative rules of conduct that are available to produce significant actions" (Suchman, 1987, p. 66). This situational premise is stated in different ways by different theorists—e.g., knowledge is local (Geertz, 1983); the significant level of inquiry is practice (Bourdieu, 1977; Phelps, 1988)—but the position is generally that

> The significance of a linguistic expression on some actual occasion . . . lies in its relationship to circumstances that are presupposed or indicated by, but not actually captured in, the expression itself. . . . The communicative significance of a linguistic expression is always dependent upon the circumstances of its use. (Suchman, 1987, pp. 58, 60)

Suchman articulates here the premise of intertextuality, the principle that recognizes the interconnected, networked characteristic of discourse. Intertextuality notes that any given discourse is influenced by its relationship to other discourses and is composed of *traces*, pieces of other texts that help constitute its meaning in a given situation (see Culler, 1981). Intertextually speaking, then, all discourse is in some sense repetitious. For example, in the Declaration of Independence the phrase "Life, Liberty, and the pursuit of Happiness" appears only once. Yet the phrase appeared in numerous political documents of its era and was, in fact, a cliche of the times. Though the phrase was not explicitly repetitious within the document, it is intertextually repetitious—and may have achieved its persuasive force precisely for that reason (Porter, 1986).

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The object of analysis for those in rhetoric and composition is not only the written text, but the writer-in-the-act-of-writing, and also the audience. We examine the text, not as an autonomous structure, so much as a stage in an overall process of action involving the writer and the audience, as well as numerous other discourses. Rhetoric complicates discourse study by involving matters related to situation and process—the setting for discourse as well as the means by which it is produced and received. From this disciplinary perspective, then, the significant questions involving repetition have to do with its inter- and con-textual, rather than simply its textual, features.

Professional writing is a newly developing field that encompasses what used to be labeled *business writing* or *technical writing*, but that extends beyond to include other concerns. Like rhetoric, professional writing is a practical discipline focusing on how general strategies are interpolated locally. Some characteristics of professional writing, as a disciplinary orientation, are that

- it draws upon rhetorical theory of language and persuasion;
- it concerns itself with the everyday practice of writing, especially writing within the parameters of the organization (or *workplace writing*);
- it calls upon resources from a variety of disciplines not typically associated with rhetoric and composition (e.g., human–computer interaction studies, graphic design);
- it focuses especially on the roles various technologies (especially computer-aided publishing) play in composing processes; and
- its focus of interest is mainly the *career writer*, the professional whose job responsibility is mainly the design, testing, and development of documents. (This orientation is different from that of traditional technical and business writing, whose orientation is not as much the *professional writer* as the *professional who writes*.)

Thus, inquiries in professional writing often examine connections between rhetorical situation, document design, computer use, and audience—as does our study.

Rhetoric and Visual Design Theory

The basic premise of the rhetoric of visual design is this: Any page of text is composed of visual as well as verbal elements, and those visual patterns themselves exert a rhetorical effect. The words on a page are always laid out in certain spatial patterns (if only block paragraph form, with simple one-inch margins), and those patterns not only cue the reader as to how the material is to be comprehended, but also attempt to persuade, or argue that the reader should adopt a certain posture toward the material (see Buchanan, 1989; Bernhardt, 1986). Layout directs seeing, which influences learning and thinking—and behavior generally (see Arnheim, 1969).

FIGURE 1. Warning Box

> **• WARNING! •**
>
> **Reading this passage before reading the previous discussion**
>
> **will only prove the authors' point.**

We can look at an obvious example of how design influences reading. It is fairly easy to get a reader's attention with a warning label (see Figure 1).

The box will garner your attention, but can we predict when or how you will read the warning box? Can we accurately predict that you will read it before you read anything else on its page? It would not require much insight to predict that anything boxed and centered on a page of otherwise dense, gray, academic prose would get noticed. Before we jump to conclusions about reading processes, though, it would be best to consider contextual factors: Our article is thus far laid out so as to invite a conventional linear reading, and if you arrived at that page committed to that pattern (both because the text promotes this reading and because you are accustomed to reading academic prose) you may *not* have read the warning box first.

We include this example to point to the problem of predicting the effects of design. Contextual complexities create problems which can frustrate information designers (see Easterby & Zwaga, 1984). Readability research notes that machine operators who receive too many warnings begin disregarding them. Laws mandate warnings, and companies post warnings, to promote the safety of their employees (and to protect themselves from law suits). But the more warnings there are, the less effective they may be. Despite the importance or "newness" of the message, repetition of a familiar message or design can lead a machine operator to ignore it. The standardized medicine label is another instance where design repetition can both help and hurt (see Hartley, 1985). Standardized labels assure that information will be positioned in a uniform way from bottle to bottle—and that, ideally, is supposed to promote safe use of medicines. But as consumers become inured to the design, will they read labels as carefully?

The issue of repetition emerges for the field of professional writing under the rubric *design consistency*—and the conventional thinking supports design consistency as a positive feature of documents. *Design* in this context refers to format in the physical sense (i.e., page layout) and to typographical elements. *Design consistency* refers to repetition of basic patterns throughout a document, to the repeatability of basic page formats, styles and positioning of headings, and so on. In the field of information design, it is thought that design consistency assists comprehension and memory. The simple cognitive

principle invoked here is that readers will understand new material best in relationship to old material. A familiar design, then, can help writers process complicated and/or new information.[1] At times, even redundancy is recommended.[2]

In desktop publishing, writers are encouraged to create page templates and style sheets that will assist them in maintaining design consistency throughout an entire publication.[3] The very idea of a template is that it establishes a master page format which is repeatable through a publication: "Templates speed up the production cycle and help maintain consistency. In addition, they add a 'family resemblance' to your . . . publications, thereby increasing their effectiveness" (Parker, 1988, p. 126). Design consistency and conformity are strong and established values in the field of professional writing (see Polson, 1988). Lay says that:

> Frames [on a page] should be consistently designed; the same element should appear in the same place for continuity and if possible be identified by borders or symbols unique to that element. . . . To have "findability," a layout should be consistent and predictable, with information blocked and labeled and with easy-to-scan internal heads (1989, p. 76)

Consistency and conformity are positive qualities, but page designers are also urged to develop variation within established patterns. Lay recognizes that consistency alone does not make for effective writing: "a general design rule is that meaning lies in contrast; the unusual, the irregular, or the large attracts our attention" (1989, p. 80). "Creativity," as well as conformity, is recommended. But despite such recommendations to establish diversity, the dominant value—especially in the writing of instructional (as opposed to promotional) text—urges consistency of page template, heading format, user interface, and so on. Though each page may have separate unique elements, the overriding advice to the instructional designer is to situate those elements within an established template.

Discussion of Study

In part, our study aims to determine whether overall page design consistency—from page to page through a manual, for instance—is desirable in computer documentation. Does a repeated page design promote or conflict with the aims of computer documentation? In 1989 we began a longitudinal study of a developing professional writer's involvement with a page-layout tutorial he was producing for use in a desktop publishing class at Purdue University. Much audience theory in rhetoric argues that sensitivity to audience is slow to develop in writers, and we were particularly interested in the question of how user testing of documents might promote sensitivity to audience (see Sullivan & Porter, 1990a,b). Max, our longitudinal subject, developed an allegiance to the document he produced in that class and kept working on it for another year. Our study tracks various aspects of Max's involvement with his tutorial.

Here we report on one of the later segments of the longitudinal case study, Max's April 1990 user testing of his Aldus PageMaker tutorial. In this segment of the study Max is anticipating what users will do with his tutorial and is observing five users trying to complete his tutorial.

Methodology

The Subject

Max, the central subject of this study, graduated from Purdue's Professional Writing program in December 1989, with the technical writing option. At the time of the user testing he had taken a documentation job at a major computer company, but had not yet begun working. Max is a bit older (almost 25) than other graduates of the program; he started as an engineering student, dropped out of school a couple times, and did not seem to focus until he "found" technical writing. His grade point average is lower than that of most of our students, though he has good grades in writing classes taken during his last year. We think he is typical of technical writers, as he has come to it from something else; he is eclectic; he is an independent learner; he values system accuracy. Max has the traditional value of "system first" that is instilled in computer scientists and engineers, and often technical writers.

The Document

The document is a sixteen-page tutorial that introduces Aldus PageMaker by having the user recreate the cover page of the tutorial. The page that users produce has a graphic, some headlines, and two-column text; it is designed to have the basic elements of a simple newsletter. The tutorial itself is produced in $8\frac{1}{2}'' \times 11''$ format (single-sided pages). It is comprised of three pages of introductory material, twelve pages of instructions, and a one-page conclusion (listing suggestions for future learning). Max's goal in the tutorial is to have people move through the basic tasks fairly quickly, get some experience, and have some success. He wants to give users enthusiasm for the task of learning Aldus PageMaker. We have some measure of the quality of the tutorial: it received an A in an upper-level professional writing class; it won third place in its division in a publications contest (the Chicago chapter of the Society for Technical Communication); it was successfully completed (and praised) by all five users.

The Users

Max tested his tutorial with five users, all of whom were women in an advanced professional writing class (taught by J. Porter) that was using PageMaker to format a class project. Max selected these users based on a screening survey the teacher distributed to the class. He wanted people with no experience with PageMaker, with some knowledge of computers, but with a sincere interest in

(or a good reason to learn) PageMaker. All five users were familiar with basic word-processing functions on the Macintosh computer. We concur with Max's judgment that these are appropriate subjects for his tutorial.

The Researchers

We are participants as well as observers. Max is our student; if he runs into profound difficulties in one area or another, we are honor bound to try to help him. And, even though he has now graduated, he takes our opinions as having more authority (in some areas) than his do. This does not mean he is not a maturing adult; nor does it mean that we "tell" him what to do all the time. In fact, we try to allow student discovery in our classes rather than dispensing knowledge, so Max does not really expect us to give him answers—we never have. The users were at the time students in J. Porter's class. So we are bound up with everyone in this study, as the professional writing community at Purdue.

The Data Collected

Our data for this portion of the study include audiotaped interviews, audiotaped user test sessions, and printed material. We interviewed Max twice regarding planning for the user test sessions, and we interviewed him immediately before and after each session. Written data include the tutorial itself; our and Max's notes during the user test sessions; surveys about the backgrounds of the users; and the printed pages the users produced.

The User Test Sessions

Each of the five users was tested on separate days in April 1990. The test was held at an isolated table in a corner of a computer lab, with observers at the user's side. The test procedure was modeled after Atlas's (1981) recommended "user edit," Max briefly introduced each test and asked the user to work alone and to talk aloud as she worked. Each user then worked through the tutorial, finishing by printing out a facsimile of the cover page of the tutorial. After each user finished, Max asked for her comments, suggestions, and responses.

Results/Discussion

The Document

The tutorial follows the standard conventions for computer documentation, maintaining a consistent tone, style, and design throughout. The rhetorical posture Max adopts in the tutorial is also conventional: it assumes that absolute authority lies in the program, and that the role of the manual (and its author) is to explain that authority and its proper procedures to the user (who begins in

ignorance). Max does assume that the user has a certain amount of computer background (e.g., basic word-processing background; familiarity with the Macintosh), but that the user has near-total ignorance about PageMaker. This turns out to be an accurate assessment of the audience, but is it ever rhetorically sound to remind an audience of their ignorance for any length of time? The tutorial's adherence to convention that is reflected in the visual consistency of the pages may have conflicted with the changes in the users, who are not static entities but people who change through the course of the tutorial.

The physical design of the tutorial supports the conventional rhetorical posture. Max uses fairly conventional instructional design elements for his tutorial (see Figure 2 for mock-up): two-column page, with headings in larger and bold type, numbered directions, explanations in smaller plain type, numerous illustrations (mostly computer screens), and one task per page. The reading pattern this design encourages is well established: You (a) read each direction in order, (b) perform the function, (c) check results (either against a description or an illustration and (d) proceed to next step. Max repeats this basic pattern on twelve of the sixteen pages of the tutorial. Earlier in his composing process, he wondered whether there was a better "track" for the manual—but he stayed with the step-by-step procedure, in part because he could always group related steps into a page.

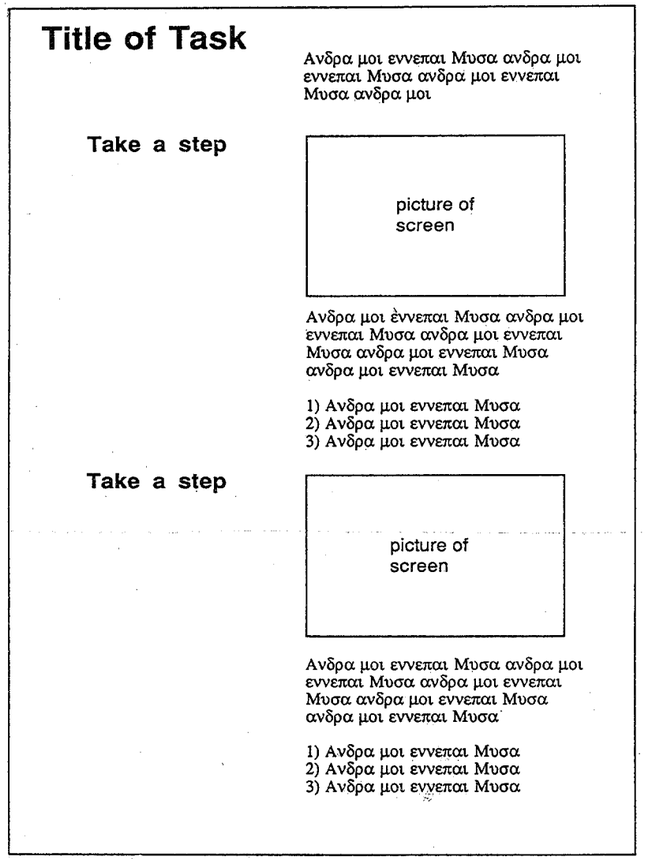
The single most repetitious element in the tutorial is the numbered, single-sentence, imperative instruction: e.g., "When the Page Setup window appears, click the OK box." Max gives sixty-five separate imperative commands in the twelve pages of directions. This is not unusual for documentation—in fact, it is quite the norm. The commands are often followed by a computer screen illustrating the action the user is to perform. At other points, the commands are followed by verification statements—such as "The Placing Tool for paint files will appear as your mouse pointer"—intended to provide a way for the user to determine whether she has successfully implemented the command.

The physical design helps maintain the consistency of the rhetorical posture: command, illustration, verification, next command. The user is treated as an operating system—and in fact in one interview Max referred to his intended users as "compilers." The users experienced some impatience with the tutorial toward the end—and especially when they were instructed to type out what they perceived as an unnecessarily long sample text. They followed the directions, but expressed various forms of frustration at doing so (e.g., sighing in two cases, snickering in another).

The Users

All five of the users tested successfully completed the tutorial by printing out a reasonable facsimile of the cover page of Max's tutorial—though two of the five encountered obstacles that required Max's intervention. Four of the five users reported feeling good about what they had learned about PageMaker; these four indicated that they felt confident enough to try PageMaker on their

FIGURE 2. Mock-up of Representative Tutorial Page



own in the future. None of the five users took longer than forty minutes to complete the tutorial (the quickest took thirty-two minutes).

It is difficult to isolate page design as the significant variable influencing users' behaviors, since any particular reading behavior can probably be attributed to multiple influences. Our five users' reactions to the PageMaker tutorial could well be reactions to the overall rhetorical posture of the text, as well as to its page design. But there is a point where rhetorical posture and page design overlap.

In part, our discussion demonstrates what we mean when we say that design is rhetorical. Even though instructional text is typically thought to be neutral, it is not (see Kinross, 1989). Max's page design and rhetorical posture are interconnected, and the two work in unison to establish and maintain authority over the users. The users seemed willing, even glad, for the lock-step, directional guidance early in the tutorial, when they were least confident. One user commented positively to Max about how he had arranged the tutorial: "step by step . . . you didn't make a lot of presumptions about how to do it. I like that." But especially later in the tutorial the users became impatient with the user test. As they felt that they had the "idea" of using PageMaker, they became more impatient to be through with this and start their own projects.

We noticed that as Max's users worked through his documentation, they began to miss messages that were visually deemphasized on the page. As they became more familiar with the page design, they became less careful readers. (Since none of the user sessions lasted more than forty minutes, we doubt that physical fatigue was a significant factor in their responses.) Repetition provides a familiar orientation for the reader; but an overly familiar design can also lead readers to conclude (mistakenly) that they are familiar with the material. People ignore instructions when "they believe that they already know how to proceed" (Suchman, 1987, p. 166). Ramey's research on computer users tells us what our own experience affirms: "about one-half to three-quarters of computer users want to spend very little time reading, and especially do not want to read continuous discourse. . . . They skip sections that look like overviews, introductions, and so on, and scan down the page" (1988, p. 148). At some stage in the user's development, a more open-ended design allowing for user independence might be more suitable.

The Developing Writer

Max's project, which he views as his attempt to learn how to design pages and how to write for users, is one he is committed to. That is clear from his conduct: he wrote and rewrote the document for an advanced writing class he took in Spring 1989, and he revised it for his portfolio in Fall 1989. He revised it again for submission in the publications contest of the Society for Technical Communication (STC). Based on feedback he got from the STC, he continued to revise the document into Spring 1990, and agreed to let us observe him testing the document with five users.

Max's expressed goals in writing the documentation were complex and potentially contradictory. Max wanted to motivate novices to learn and to use PageMaker. He wanted to help novice users understand the basics of PageMaker and to learn enough that they would be encouraged to learn more. His step-by-step tutorial design choice seemed to work against the "understanding" goal by placing the user not in the role of learner so much as the role of doer simply performing actions without understanding them. He thought that by doing, the novices would come to understand. Interestingly,

we observed several points at which the users would continue to follow directions even when they recognized it as arbitrary or stupid to do so. For instance, three of the users typed their PageMaker headlines in miniature, even though they knew this was probably wrong, simply because the tutorial did not prompt them to select the "Actual Size" view. The design of the directions promoted a dependent doing, rather than the independent learning Max expressed as his aim. Such a design asks the user to surrender independent thinking and to simply follow directions. It is a design that suits "reading-to-do" rather than "reading-to-learn" (see Porter, 1989).

Max's page design represents his version of an ideal path of human-computer interaction. We suspect that he chose his design based on his familiarity with other similar designs for instructional text. He repeats the design because he expects that the familiar pattern will direct users in predictable ways. There are other design options Max could have chosen to encourage different types of human-computer interactions (for example, a more open-ended type of tutorial that would not demand specific responses). But Max seemed committed to the directional design. Despite evidence from the user test that indicated that different designs, or multiple designs, might have been appropriate, Max remained committed to his established template, choosing design consistency over user needs.

Max's approach to documentation reflects his systems orientation. In an interview early in our study, Max told us that, until Spring 1989, he never bothered with page design, because he was too busy getting the content into the manual. In this remark, Max reflects a conventional attitude that content is what counts most in writing. He thinks good documentation is comprehensive, covering all the necessary material and providing a complete and accurate description of a procedure. Users must be told everything to do; the tutorial provides lock-step directions for performing the tasks—and either the users get it "right" or they get it "wrong." When they encounter problems, Max's answer is to provide more clarifying information, or to "fix" sentences. His orientation toward users seems to block him from making global changes that might have helped his documentation.

Conclusion

The key question we ask, then, is this: Should page design (which always conveys a rhetorical posture) change through an instructional tutorial or publication to suit the changing reader? Our tentative answer is, yes, this might be desirable—though anticipating whether and how fast a user is likely to develop will pose yet another challenge to professional writers. Repetition of page design through an entire publication and consistency of rhetorical stance may suit some situations and may satisfy some abstract aesthetic principle. But strict adherence to such consistency may not be suitable for readers whose needs change as they learn. McDonald and Schvaneveldt (1988, p. 291) warn us that "it would be a mistake to conclude that standardization is a good solution to the most important interface design problems."

Now, we do not want to suggest that page designers begin eschewing consistency on a large scale. We agree that certain forms of consistency are helpful to users—for instance, certain typographic consistencies (such as using bold type for computer commands) serve a metadiscourse function, indicating how readers are supposed to react to the language. Extended repetition of overall page layout, however, may bespeak an infelicitous commitment to a single rhetorical posture. And a single rhetorical posture—especially if that posture is one of authority over the supposed ignorant user—may not be tolerated for very long by the user who is learning and developing.

Writing usable computer documentation is more challenging than most people imagine. It involves more than simply explaining all the steps of a procedure or listing out directions in neat sequential order. Writers need to be aware, not only of the system they are describing, but of the situation of the user—and use this knowledge to build suitable designs (see Rubens & Rubens, 1988; Winograd & Flores, 1986). Partly this art requires an appreciation of the role and effect of repetition within the rhetorical situation. Repetition can help establish a common and/or familiar framework for the audience, but in some situations familiarity can also undermine the aims of the discourse.

NOTES

1. The basic component of the page, in terms of design, is the *grid*, a "skeletal understructure [that] brings cohesiveness to a visual piece" (Berryman, 1984, p. 38). The grid a designer sets up for a page establishes a basic pattern providing cohesiveness and continuity. The psychological presumption here is that "humans tend to prefer organized visual and verbal information. Grid systems allow the designer to satisfy viewer groups with respect to equilibrium, similarity, and continuation. They help the designer to avoid visual ambiguity" (Berryman, 1984, p. 38).

2. For example, Weiss (1985, p. 133) advises that "Redundancy [in computer documentation], although it complicates maintenance and seems inefficient and wasteful, reduces the number of skips, jumps, branches, and loops in a publication."

3. The very history of the book supports the importance of repetition to design consistency. As W. J. Ong (1982, p. 127) asserts, a printing press can print an "exactly repeatable visual statement." He points out that, in the printing press culture, a book is less of an utterance and more of a thing, bringing with it labels, title pages, complex lists, maps, charts, and alphabetical indexing. Ong goes on to say that

> Because visual surface had become charged with imposed meaning and because print controlled not only what words were put down to form a text but also the exact situation of the words on the page and their spatial relationship to one another, the space itself on a printed sheet—"white space" as it is called—took on high significance that leads directly into the modern and post-modern world (p. 128).

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PART FOUR

Visual Rhetoric and Argument