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# Coherence On and Off the Page: What Writers Can Know about Writing Coherently

Gregory G. Colomb and June Anne Griffin

LIKE ITS FREQUENT COMPANION, clarity, coherence is a near universal desideratum for readers. Readers appreciate other qualities—persuasiveness, concision, precision, thoughtfulness, correctness, grace, wit—but those are never as important, are often unnecessary, and can even be undesirable. Prospective readers commonly tell writers, *Don't waste your time polishing* or *I don't care about the grammar*. But who would tell a writer of a document *they* have to read, *Don't bother to make it coherent*? Also, coherence is one of those familiar notions that, except for a few academic types, nobody argues about very much. We know it when we see it, and we know where it comes from: coherent texts hang together; their ideas are consistent, and they stick to the topic; they have main ideas that hold the others in line; they don't wander, and they don't have rogue parts that confuse us with irrelevancies. Perhaps that sense of easy perspicuity is why so much advice about coherence says so little, so vaguely—says, in fact, almost nothing that we don't already know.

“Choose a suitable design and hold to it,” exhorts Professor Strunk, praised for his pith and wisdom by his student and later collaborator E. B. White.<sup>1</sup> That “first principle of composition” is joined by a second, “Make the paragraph the unit of composition” (15); together they constitute the sum of what their famous guidebook says about being coherent. This would seem to be advice that the professor's students could be expected already to know—saying it must be more reminder than information, as when Annika Sorenstam's caddy says, “Swing through the ball.”

Strunk's reminders are in many ways exemplary of the treatment of coherence throughout writing studies' long guidebook tradition. The first describes what he calls a “scheme of procedure,” a strategy of composition that puts the writer in a frame of mind conducive to producing coherent texts: “planning must be a deliberate prelude to writing” because “[t]he more clearly he perceives the shape, the better are his chances of success”(15). The second identifies a feature of coherent texts that writers should replicate: the basic “unit of composi-

tion" is the paragraph, which "aid[s] the reader" by signaling "a new step in the development of the subject" (16). These are the two kinds of information about coherence that most guidebooks assume a writer needs: follow effective procedures and create a text with the appropriate features so that readers will have the desired response. Coherent ideas put into coherent texts yield coherent understandings.

What is most remarkable about such advice is that it should ever work. It gets the actual story backwards: coherence is created by readers, not texts; and texts often create, rather than record, the coherence of their writer's ideas. Each stage in that process is complex almost beyond words: we now know that writing and reading involve an array of mental and physical activities many of which go so fast and so unnoticed that it is hard to believe they really happen; that the structures that compose a text are so numerous and complex that years of research are just beginning to uncover them; and that a reader's understanding comprises many different mental representations that respond to a wealth of factors in and beyond the text. Overall, the key to coherence for both writers and readers is not unity but multiplicity: what makes a text hang together for readers is not that it has a unified principle of organization but that it has many different, though related, ones.

In view of this, Professor Strunk seems pithy indeed. And many in writing studies think such empty reminders are the best anyone can do. For instance, Stanley Fish (an interloper, but much cited) points to the example of Baltimore Orioles manager Earl Weaver, who once helped pitcher Dennis Martinez by saying no more than "Throw strikes." He argues, to widespread agreement in writing studies, that such examples show that there really isn't much to say about how to perform such tasks as pitching, making legal rulings, or writing: these activities are too complex for words, so the best we can do is remind each other about things like planning and paragraphs and trust to experience and talent.<sup>2</sup> In fact, it may now be the dominant position in writing studies that the only way for a writer to improve is reflective practice and thoughtful feedback. And, to be fair, the more one looks at the processes that seem to underlie planning, paragraphs, and coherently understanding them, the more attractive that point comes to seem—especially in view of the long, unhappy tradition of trying to improve writers by having them memorize unusable information about the texts we want them to produce.

This essay revisits the question of what one can say to a writer about how to write coherently. We begin with the premise that no equitable society can so blithely trust to experience and talent. Reminders like *Throw strikes*, *Swing through the ball*, and *Choose a suitable design and hold to it* can be good advice for a big league pitcher, an Annika Sorenstam, or

a young E. B. White: they help focus an already superlative talent. Sports can afford to let those without talent fall by the wayside. Writing studies must not. We also begin by acknowledging that most advice about coherence doesn't work very well. Whether thoughtful aphorisms like Professor Strunk's; descriptions of the practices of the best writers, as in Aristotle; or just compilations of every regularity ever identified, as in most handbooks; traditional advice also trusts too much to experience and talent: it works best for those who don't need it, except as a reminder.

That advice fails not because no advice can work, but because it's the wrong kind of advice, based on a false theory of coherence. Coherence is a more complex, more ubiquitous, and in many ways less accessible phenomenon than our intuitions or scholarship ever led us to believe. But as fascinating as the true story of coherence may be, the reflective-practice school gets one thing right: it does little good to tell that story to writers, even less to teach them its marvelous intricacies. Not only is the story too complex, but it so contradicts our intuitions that it is unusable and may even be unthinkable in the act of writing. What writers can use, however, are ways of seeing their texts—models or images—that allow them to consciously frame and so shape and control the almost unimaginable complexity of producing texts that readers find coherent. In this essay, we first sketch the kind of account of coherence that is best supported by a growing body of research, counterintuitive though it is; we then show how such an account can become the basis of “usable knowledge,” advice that you don't have to be E. B. White to use.

## Identifying Coherence

Without coherence, none of us could think or act. The coherence we have in mind for that claim is not measured by the kind of hyperconsistency we sometimes look for when we put ideas, ideologies, or theories under a conceptual microscope: neither our thoughts nor our actions could often pass such a test. If coherence did require total consistency, it would be rare and remarkable. Instead, coherence is a mundane, largely invisible background to most of our experience, emerging whenever our minds package what we perceive, imagine, or understand neatly enough for us to manage it within the limits of our conscious capacities for attention and intention.<sup>3</sup> So mundane is it, that we typically notice coherence only in its absence. To be sure, we can think and act in those rare moments of incoherence, even of chaos (though often poorly); but without a broad ground of coherence we would be lost.

Here, we hope to place textual coherence within that broad ground of coherent conscious experiences. But to do that, we must resist many of the ordinary implications and associations of the term, which mark out a radial category whose central, prototypical instance is a designed, representational object—a text or image—whose coherence is a property of its design, created by its author and only perceived by a reader. Accordingly, our account will contradict traditional ones that seem to correlate coherence with simplicity, with perfect consistency, with hierarchy, with totalizing authorial control, and generally with an exclusion of all qualification, nuance, and subtlety. It may be easier to offer readers the experience of coherence with a text that is simple, consistent, controlled, unqualified, unnuanced, and obvious; but that ease is no indication that those are the essential qualities of the experience. Our account of the processes by which we generate coherent understandings of a text gives the lie to centuries-old associations of coherence with unilateralist, monological conceptions of design that have often been celebrated but are now more often decried for their theological and ideological implications.

Though we will come around to address the issue of the coherence designed “in” texts, we begin looking at coherence as a quality of experience: in the case of written texts, readers achieve a coherent understanding when their mental representations of the text are consciously experienced as a continuous whole that serves as a singular point of attention. We will elucidate the process of composing those mental representations shortly; first we will elucidate two points at which we seem to find common ground with traditional ideas (though with crucial differences), and one which is only available by shifting the ground of coherence from texts to readers.

**CONTINUITY.** It is obvious enough that judgments of coherence involve wholes of some complexity: the question of coherence seems odd or irrelevant in the case of a single word, or even of a single sentence. But in order for an understanding to seem coherent, it must seem, not seamless, but at least continuous. The question of the coherence of a book, for example, seems out of place when we engage the book only through its index, reading a few scattered pages on a specific topic. That does not mean that coherence requires that we read each word. The question of coherence reasonably applies when we skim a text, or perhaps read just an abstract or executive summary. Nor does it mean that coherence requires each word or even every section to seem connected to every other. Even very loose connections can support a coherent understanding. What seems to matter is not that we experience every item of information in a text as connected to every other, but that we experience its information as a composite.

SINGULARITY. Though judgments of coherence require that we see a text as a whole, we do not experience all wholes as coherent. To see a text as coherent, we must be able to interact with it as a single, focal point of attention. In phenomenological terms, we can keep it in mind all at once. Since readers typically retain only a portion of the information from even a brief text, coherence requires strategies for reducing the information we do attend to without losing the significance of what we do not. Traditionally, this requirement is seen in terms of unity: we can keep a text in mind because its parts are so related in so many ways that to have one element in mind is to have them all. Like most folk theories, this one carries a valuable insight—coherence is partly a matter of connectedness. But actual texts are seldom like that. Coherence does not require any particular kind of evident interrelation nor even necessarily a high degree of it.

Continuity and singularity are distinctive features of most definitions of coherence, helping us to mark its differences from related aspects of understanding, such as clarity or intelligibility. But to construct an account of coherence not grounded solely in texts, we need to focus on another feature of the reading experience that coherence shares with all aspects of understanding, that it is a product of a *purposeful transaction*.<sup>4</sup>

Judgments of coherence depend crucially on how a reader interacts with the information in a text and its situation, specifically on how her understanding of that information serves her purposes.<sup>5</sup> For example, readers typically demand greater interrelation and consistency when they engage a text for its argument than when they read only for information (say, to understand a procedure). Because an argument makes two claims on readers, first that they believe or do something they otherwise would not and second that they do so *for good reasons*, readers who accept those goals expect to see many connections between the gist of the text (the claim) and its details (the support) and they expect those connections to be consistent in many ways (logical, ideological, ethical, and so on). In fact, we even make different demands on arguments with different purposes: for conceptual arguments (that ask readers to change what they believe), readers typically demand wider-ranging support for coherence than for pragmatic arguments about what to do. What we count as coherence depends on what readers and writers are trying to do.

## Reading Coherently

To achieve a suitably comprehensive view of textual coherence, we must first recognize that coherence is a quality of most human experi-

ence. It is perhaps too broad, but a highly useful generalization to think of human consciousness as a coherence-making device.<sup>6</sup> “One of the most striking features of consciousness is its continuity,” remarks neuropsychologist and Nobel Laureate Gerald Edelman,<sup>7</sup> adding to a chorus of such observations by his peers. The continuity is remarkable to those who study its processes because our experience of coherence emerges from information that is strikingly discontinuous. For those who know only the experience, however, what is remarkable is not that the content of consciousness seems continuous but that anyone should think that in reality it is not. This striking difference between what our minds do and what little of it we consciously experience is at the heart of the story: reading for coherence is possible only because of that difference, and yet that difference creates most of the challenges in writing for coherent reading.

### *Coherence as a Quality of Experience*

Perhaps the clearest example of coherence-making at work is vision.<sup>8</sup> One of the most studied subsystems, vision is a basic, lower-order process that is both a central contributor to consciousness and a source of much of our language for talking about it, from the network of vision metaphors for thinking and understanding to the “Cartesian Theater” folk theory that consciousness is played out before “the mind’s eye.”

The basic story of vision is well-established: the cones and rods in our retinas detect light energy in our environment, in some cases down to a single photon. They can discriminate brightness, boundaries, and colors. This discrimination is highly sensitive only in a very narrow area of focus (the fovea) and deteriorates toward the periphery in all directions—so that little more than brightness and movement is detectable at the periphery and the specific features of objects remain obscure until they are quite close to the focal center. Moreover, where the optic nerve exits each retina there are no cones or rods, leaving us with a substantial blind spot (6 degrees of arc, closer to the center than to the edge). This is the very sketchy “raw” input available to our visual system; but phenomenologically, what we *see* are not those raw inputs, but objects and events composed into a “visual field,” a “plenum” or fully realized scene, usually of a specific sort (an office, a cityscape, a lake for example) composed of discrete objects of specific sorts (walls, desks, chairs, books and so on). We experience that visual field as a whole, uniformly detailed and focused from edge to edge; at the same time, we experience that field as composed of recognizable objects, most of whose details we either fail to register or neglect unless and until they



become relevant. Crudely put, we see both more and less than our retinas register, and in seeing it we make it coherent.

No one knows exactly how “seeing more” or “seeing less” actually works. For seeing less, psychologists talk about linked processes of generalization (recognizing what something is) and discrimination (noting salient individuating features). We see not the field of light energy that the retinas register but scenes and objects, and not countless individual objects but kinds of objects individuated only to the degree necessary. For “seeing more,” psychologists use a metaphorical language of “filling in”: the brain fills in the blind spots, fills in the details at the periphery, fills in the unseen sides of objects or the third dimension of two-dimensional representations, and so on. Daniel Dennett proposes an alternative account of “benign neglect”:<sup>9</sup> it’s not that we fill in the missing details, it’s just that we don’t care that they are missing—a possibility with interesting ramifications for textual coherence.

Though the mechanisms of seeing more and seeing less remain a mystery, both are widespread features of conscious attending, and both are clearly present in language use. Issues of categorization have long been at the center of language studies, and some of the most commonly cited examples of “filling in” concern language: readers miss errors because they fill in the correct form; listeners hear complete words even with degraded stimuli; readers and listeners fill in causal gaps between represented events; readers often recall seeing details in a text that were not actually mentioned but are pertinent to the represented world; and many others.

Finally, although much vision research has focused on individual biopsychological mechanisms in experiments that minimize contextual factors, it is also clear that the coherence-making of vision is not just an individual process. It exhibits many supraindividual features that have lately been of interest in the study of texts: it is embodied, distributed, situational, and social. Seeing is an embodied process, both in the obvious sense that particular eyes, nerves, and neurons matter, and in a larger biosocial sense: as a species we may have evolved a visual system to suit the natural world, but we have for eons inhabited worlds designed to suit the visual system evolution gave us. What we see depends on our immediate purposes, our habits of salience, our prior experience, our knowledge and beliefs—all of which are the product of individual, social, and situational factors.

Though there is much still to know about how these processes are implemented, the accounts are well-supported both at the middle functional level described above and at the highest functional level: by composing the available information into a coherent, continuous visual field, the visual system makes it possible for our consciousness to interact with what is in that field as a singular point of attention, whose



constructed basis and internal complexity can remain out of mind unless and until they become relevant (at which point we shift to new points of attention). Without this kind of coherence, our ability to think and act would be severely degraded, as evidenced not only by coherence-disabling visual disorders but also by the way people perform when confronted with visual information that is too unfamiliar or contradictory to be coherently seen. With it, we can “see” ourselves as agents located in an intelligible environment that we apprehend well enough to act purposively to meet our needs and achieve our goals.

### *Coherence as a Quality of Reading*

We can tell a similar story for textual coherence. When we achieve a coherent understanding of a text, we compose the available information, through processes of both construction and reduction (“seeing” more and “seeing” less), into an understanding that we can interact with as a singular point of attention. Think of the moment when, reading, we feel that sense of “getting it”: *Now I see what you mean* or *what you want* or *what I should do* or *why I can’t use this*. Like our field of vision, this understanding is phenomenological. Underlying it are an array of complexly interrelated mental representations whose constructed basis and internal complexity can remain out of mind unless and until they become relevant. Without such a coherent understanding, we have no basis for knowing what to do with the information we gather from a text, even if we comprehend or recall most of it—like those who can recite facts on a topic but can make no sense of what they know. With it, we can see ourselves as agents in possession of a body of information that we apprehend well enough to use purposively to meet our needs and achieve our goals.

Unfortunately, the research cannot yet support a complete account of how we get from words on a page to this kind of usable understanding. Because reading involves a vast array of lower- and higher-order mental systems, the research task is daunting. Psychologists have understandably gravitated toward simpler, sentence-level processes more amenable to experimental control. But this has meant shying away from larger textual and rhetorical structures and from the even messier question of nontextual contributors to coherence. For those parts of the story, we have to rely on research that identifies factors that contribute to coherence, but cannot explain precisely how they do so. We also have to consider what can best be classified as lore, which we must use with a skeptical eye, since what readers *say* matters to them often does not, at least not in the way they think it does.

Even with these limitations, we can delineate the general outlines of an account of coherence-making that is well-grounded enough to draw the lessons we need. Readers comprehend a text by generating several distinct mental representations, three of which have received significant study: a “surface” representation of the text itself, a “text base” of the semantics of the text, and a mental model of the world represented in the text, or “text world” (also called a “situation model,” a “mental space,” and others). Two representations of higher-level structures have been proposed by psychologists, but not as thoroughly studied: models of the text genre and the communication channel. Drawing on research in writing studies, we will presently offer modifications of those higher-level models.<sup>10</sup>

The *surface representation* is what a reader registers of the linguistic features of the text. There are competing accounts of the nature of this representation, largely depending on the flavor of linguistics one prefers. But there is widespread agreement on the basic outlines: readers create a “first pass” mental representation of a text’s surface structure. This representation is like a narrow, moving window on the text: it stretches over a few clauses at most and deteriorates in seconds or less. Except for a few salient phrases or terms, little of this surface representation remains in memory. In slogan form, the surface grammar of a text is disposable.

The *text base* is what a reader registers of the semantic structure of the text, probably in the form of propositions. Here too there are competing accounts and open questions about how the text base is derived from the surface representation, but there is agreement on the basic outlines. The text base is also a primarily local structure. Although there is evidence that it includes macropropositions (constructed generalizations), it seems not to include larger rhetorical structures, argument structures, narrative structures, and so on. The text base endures longer than the surface representation (it predicts what subjects recall in immediate comprehension tests, for example), but it too deteriorates relatively quickly. Not only is grammar disposable, but so is our first stab at meaning.

The *text world* is a mental model of what the text represents, real or not. There are many proposals for the exact form of this representation, but it appears to be something like a mental scenario, with strong story elements but also with visual, tactile, motor, and other sensory images. This representation includes significant contributions from a reader’s knowledge: to construct it a reader must draw inferences, fill in gaps, supply information too obvious to be said, and so on. Because the text world is integrated into a reader’s knowledge base, it persists far longer than either the surface representation or the text base. This is the first stage that approaches anything we would call understanding.

At these levels, coherence seems to be supported primarily by local connections from one sentence to the next. The research often distinguishes coherence and cohesion, limiting *cohesion* to local syntactic and lexical ties among sentences and reserving *coherence* for larger structures. But the research has largely ignored structures that range beyond sentence-to-sentence ties, and the best accounts of the nature of these lower-level representations leave little room for the influence of more global structures. What the research does show, however, is that textual connection does matter, though with the usual Goldilocks caveat: In most cases, the more cohesive ties between sentences and the fewer conceptual or representational gaps, the more reliably readers recall the information in a text, especially for low-knowledge readers typically used as subjects. But too many explicit connections can become a distraction and seem to keep the text from advancing.

These three levels of processing have received the lion's share of attention from linguists and psycholinguists, but they are not the whole story. At most, these representations support basic forms of comprehension, as evidenced by the kind of research investigating them: with few exceptions, it involves simple, purely informative texts that place only minimal demands on readers' memory or knowledge, and so it ignores the large-scale text structures that help readers manage complex, difficult, or contradictory bodies of information. It also typically uses readers who have no real reason to read and no use for the information they gain, testing nothing more than simple recall. This research has little to say about the kind of mental representations that support, for example, reasoning with a text's information, applying it to a new situation, using it to solve a problem or achieve a goal, and so on—not merely *comprehending* a text well enough to repeat it back but *apprehending* it well enough not only to make sense of but to make good use of what one comprehends.

The surface representation, text base, and text world preserve in turn increasingly less of the surface structure of the text and include increasingly more of a reader's own knowledge; and the more a representation is integrated into a reader's knowledge, the longer it persists and the more useful it is. But evidence from writing studies shows that even a significantly integrated text world often falls short of what a reader needs to apprehend a text for use. For that, a reader needs representations of higher-level structures, representations still more deeply integrated into his knowledge base and so more persistent and usable. Accordingly, two higher-level models have also been proposed, a model of the genre and of the communication channel.

Although genre information is crucial, it is unlikely that the genre is represented in a single model. Genres are typically too complex for a

single representation: they constrain far too many features, from printing conventions and discourse register to global organization and subject matter. Just as readers need multiple representations to comprehend the information garnered from the surface structure of a text, so we believe they need multiple representations to register the information available in high-level structures such as genre. The large body of research on what textual features shape readers' responses points to at least three such models: a model of the text's "content form," a model of its "global text structure," and a schematic model of its "architecture"—each of which picks up key genre information.

The model of *content form* registers the structure of information consequent on what we might think of as the macro speech act of the text: argument, explanation, instruction, exhortation, reference, and others. Of these, argument has been most studied. Readers who read for argument typically let the argument structure guide what and how closely they read—for instance, attending more closely to support for claims they resist but find plausible than for those they already accept or reject out of hand. Even if they read all the words with equal attention, what persists in memory as usable information will be structured by the argument and the reader's stance toward it: for example, readers are more likely to recall those parts of argument that are most consequential to their decision to accept or reject its claim. Moreover, readers often represent the information in a text not just in terms of the general structure of argument but as a particular kind of argument with individuating features.

The *global text model* represents an overview of a text's top-level information, what is conventionally thought of as the organization and what rhetoric calls "arrangement." This model registers the structure of the major units, usually though not always represented in terms of either the major point in each unit or, less helpfully, its topic. These structures sometimes reflect relatively rigid genre arrangements, as in experimental reports (Abstract-Problem-Procedure-Results-Discussion-Conclusion) or legal memos (Issue-Answer-Facts-Analysis-Conclusion): such arrangements group information not only by kind but, more importantly, by its function for the reader. There are also all-purpose structures that can govern the arrangement of the whole or can operate within set units. The most common is to arrange the major points in a "story line," a global narrative (or collection of narratives) that makes the points more connected and memorable. For instance, the points in this section of our essay are arranged in a story with two interrelated lines of development: moving up the levels of a text as representations increase in persistence, usability, and importance to coherence, and at the same time moving down in our understanding of their specific implementation.

The *schematic model* also registers the global arrangement of a text—but here in terms of its architecture. The schematic model is strongly responsive to visual cues, ranging from the initials and rubrics of medieval manuscripts to the headings, white space, font changes, colors and shadings, boxes, and other visual tools of contemporary document design. The schematic model interacts with the content form and global text model in many ways. The three can be very similar in genres such as the legal brief, where argument structure, text structures, and visual document structures typically coincide. This model also frequently registers the schematic structure as an instance of a type associated with a specific genre or situation.

Of the three high-level representations, it is the schematic model that best supports reading practices that value quick apprehension over complete comprehension. That may explain why contemporary document design emerged in discourse communities that serve readers whose needs for detailed comprehension vary greatly. It may also explain why genres that deemphasize visual cues are today typically found in discourse communities that value detailed comprehension (for example, the interpretive humanities served by journals like *NLH*) where claims are often less of interest than the specific analyses or interpretations that support them. By minimizing visual cues, these texts force readers to read more—and more closely—in order to generate these higher-level models, thus making apprehension more costly (and somewhat less likely), but increasing the chance that a diligent reader will comprehend more of the text more fully. At the same time, the look of a “low-design” page conveys important transactional information about both the writer’s ethos and the implied reader.

These last three representations provide key resources for coherence that neither a text base nor a text world can: conceptual hierarchies that allow information to be managed in relation to a reader’s purpose. Information is grouped on bases more relevant to a goal than semantic relations (as in a text base) or referential continuity (as in a text world). Information can also be reduced without losing its value—as when many individual data points are reduced to *good evidence for claim X*. And finally, by ranging among all of these representations, a reader can use information with varying levels of specificity.

The final representation is a *transactional model* of the text in terms of goals and purposes, both the reader’s own and her understanding of the writer’s (including relevant aspects of the psychologists’ proposed “communication channel,” such as genre, forum, reading conditions, and so on). This representation exerts perhaps the greatest influence on coherence, not only on whether readers achieve a coherent understanding but also on the form that understanding takes. Readers use their

understanding of the writer's goals and rhetorical strategies, both in local sentence processing and in generating higher-level models. More influential still is a reader's understanding of how the writer's goals interact with her own. This aspect of the transactional model controls what is read or reread, in what order, how quickly, how closely, with what level of engagement, and so on. A reader may choose to read only for what she needs from a text; but she may make a more complex judgment that depends on a variety of social factors (including prior relationships, social standing, the prospect of future interactions, to name a few). What a reader works to understand from a text can be as much a matter of what she thinks she owes the writer as what she thinks she can get from him.

#### *Four Keys to Coherence*

We will not rest too much on the specific details of this synthesis. Given the difficulty of the issues and the state of the research, the best anyone can do is a rough and ready sketch of the key elements and their functions. We have drawn together research of varying kinds and of varying reliability, and there remain many points of debate and uncertainty, and not only about the specific neural mechanisms. If our picture makes sense, it is in part because we used low light and a soft focus. But the research does offer good reason to place substantial confidence in the higher-level functional accounts. We may not yet have a good close-up of exactly how readers manage to achieve coherent understandings, but the larger picture of what readers have to do to get there is becoming clear enough to support at least four lessons for writers and those who would guide them.

- *Understanding texts involves multiple mental representations.* When a reader understands a text, coherently or not, she does not create a single understanding whose coherence she experiences or judges. On even the most cursory reading, a reader generates many different representations from a text. These representations register different aspects of the text's local and global structures; they themselves have different structures; they serve different functions; and they are employed to different degrees, depending on a reader's own purposes and her understanding of the writer's.<sup>11</sup>
- *These representations respond to many factors.* Although each individual representation responds primarily to a specific subset of a text's structures, each has many textual sources and interacts with other representations. Moreover, the representations respond in varying degrees to features of the reading experience that are thought of as

extratextual, including both metatextual features (such as its forum, its conventional role in a larger activity, its reputation or imprimatur) and features of the immediate situation (such as the material implementation of the text, the physical conditions of reading, the immediate purpose of reading).<sup>12</sup> Consider how different are the conditions of coherence for a beautifully printed philosophical treatise, read in a quiet study and at a leisurely pace, by a reader committed chiefly to understanding the truth, as opposed to those for a photocopied report, read in the interstices of a busy stockholders' meeting, by an executive soon to be asked to comment on the issues it raises.

- *These representations are cooperative constructions.* A reader's mental representations are her doing, but they obviously owe much to the writer; and yet even this dyadic account is too narrow. As we have seen, readers construct these representations, seeing more and seeing less than the text offers, integrating them with their knowledge base, and generally making them their own. Readers exercise considerable conscious control over the process; at the same time, much of it involves unconscious processes that readers cannot but undergo. On the other hand, writers construct texts to accomplish their own goals, but effective writers construct them for readers. Even writers who consciously ignore readers must use linguistic forms and practices designed for understanding. So readers are always a part of the writer's picture. Finally, those linguistic forms and practices are sociocultural products, in which many agents have participated and continue to participate even at the moment of writing or reading.
- *Coherence is a product of the coordination of multiple representations.* A reader achieves a coherent understanding of a text not by creating a single coherent representation, or even by creating a series of individually coherent representations, but by coordinating a variety of representations in ways that satisfy that reader's needs and help him use that understanding in a way that suits his purposes. Although high-level models tend to be more influential for coherence, which constellation of representations proves decisive is a development that varies case by case and that not even the reader can know directly. Coherence is a quality of a particular activity of reading. It follows, then, that coherence cannot be imposed by writers on readers, on texts, on the world, or on ideas. It is not a product of monological design, but emerges as a situated, purposeful, polylogical response. Writers cannot expect to create it, only to support it.

Perhaps the most important lesson is how counterintuitive this all seems. Readers do all of this processing so automatically, so easily, that it



is hard to believe that so much is happening behind our backs, as it were. And since a key function of the process is to keep all of that complexity out of mind, the more we try to experience it directly through introspection, the less of it we see. So in order for us to use these lessons when reading or writing, we have to begin with the fact that it is and will remain counterintuitive—an issue we will explore in a moment.

*Coherence Is an Invisible Default*

In order to read at all, we have to assume a degree of intelligibility: a language we know, material we can understand, sentences that somehow connect one to another. In order to read a text to serve a purpose, we must assume that it will be clear enough, cohesive enough, flowing enough, consistent enough, and relevant enough for us to apprehend it coherently for our use. But the burden is not entirely on the writer, and sometimes is not primarily so. For the expectation of coherence is so strong that readers will often find it even when a text seems to support it poorly. The more a reader desires the outcome a text offers and the more resources she can bring to the process, the less support she needs to achieve a coherent understanding. There are *two* lessons in examples like the student who, reading Keats's "Ode on a Grecian Urn," sees not the strange historical adjective *Attic* but the familiar architectural noun *attic* and so creates a coherent interpretation of Keats's exploration of ghosts and spirits.<sup>13</sup> This may be a striking instance of the indeterminacy of meaning; but we should also see here the power of the expectation of coherence at work: we engage texts in order to serve our purposes—in this case to produce an interpretation for a teacher—and we usually do what we can to make them do the job.

Because readers expect coherence and have so many resources for creating it, texts do not have to be perfect to support it. Good enough is usually good enough. We earlier said that a text is judged coherent when it satisfies its reader's needs in putting it to use. But in one interpretation, that term is too strong: to be coherent, a text has only to "satisfice" readers. Economists have shown that most people are motivated to work not for the level of resources they desire (to "satisfy" their needs) but only for a level they can live with happily (to "satisfice" them); so most readers do not require from writers and their texts all the support they might want, but only a level that lets them deal with the text as they wish. Of course, what serves as a level of support that will satisfice a reader varies with a reader's goals, disposition, and resources.

Finally, coherence is such a strong default expectation that readers rarely take note of it. In most cases, when a text satisfices a reader's need

for a coherent understanding, she will not stop to contemplate how that happened, but will focus instead on how that understanding serves her purpose for reading. So unless a reader begins with the aim of analyzing a text, say as an editor or teacher, she is unlikely to remark to herself or others, *Now that was coherent*, any more than she would usually remark that a text is clear, cohesive, consistent, and so on. Only when the expectation of coherence is *disappointed* do readers shift to an analytic mode to note it. Of course readers may notice coherence or clarity when their experience or prejudice has led them to fear otherwise (*That was remarkably clear for an engineer* or *That was consistent for an economist* or *That was coherent for Robin*), but that too reflects an analytical approach prompted by surprise. Coherence is such a strong default that it typically gains conscious notice only in its absence.

*Coda: There's Coherence, and Then There's Coherence*

Coherence may be one of the most desired qualities for readers and therefore one of the most important goals for writers, but it is not an end in itself. A reader wants a text to be coherent so that he can interact with it successfully; if that coherence is purchased at the cost of diminishing the text's use for him, then the price is too high. A writer wants a text to be coherent so that readers can respond in a way that serves the writer's goals; so a coherent reading is of no use to him if the reader finds a basis of coherence at odds with those goals. The more specific the goal, the more the writer needs to influence readers to find a specific kind of coherence based on specific aspects of the text.

## Finding Coherence in Texts

It may be true that a reader's understanding emerges through interactions with a vast array of significant features, distributed among many artifacts and practices, shaped by many acts of meaning, and coordinated on the fly to suit the needs of the moment—or, to borrow a metaphor from Gilles Deleuze and Félix Guattari, that the text is less like a tree whose roots spread to unseen places than like a rhizome whose existence is nothing but spread.<sup>14</sup> But you can't tell that to writers, not even to Deleuze. It's a fool's errand to expect to deflect a writer's attention away from the text, especially for the kinds of texts in which coherence is most at issue and hardest to achieve. While the evidence offers no good reason to deny that the text structures both writing and reading, even modest attempts to situate that truth in a more complex

account run afoul of entrenched ideas that make the text so dominant that it overshadows all else—ideas that structure the writing experience, even for those who know better. This prominence of the text for writers and readers has many roots in our practices, culture, and psychology. Here we will sketch three interrelated sources of the text's hold on writers, a hold that renders much of what we know about reading and writing of little direct use to them.

*Intuitively, Coherence Is Unity*

One reason coherence is so important to readers is that it presents to consciousness a sense of the text that is considerably less complex than either our understanding or the processes that compose it. Since the apparent unity of our understanding is what leads us to judge the text as coherent, it's hard not to attribute that coherence to the unity of the text itself. If we consult our conscious experience, the coherence of our understanding is a product of its unity, not its multiplicity, and so the coherence of the text is likewise a direct product of its unity. Those intuitions are bolstered by our language, habits, and everything else comprised by common sense: when writers bring their ideas into a coherent relationship, package them in a unified text, and then readers read responsibly, the result—those ideas now transferred from writer to reader—is coherence.

Those intuitions are, of course, untrustworthy. One of the most durable lessons of cognitive science has been that introspection is a poor tool for understanding thinking; most of what we think about our own thinking proves to be unsupported by the facts, usually because we do not consciously experience the processes that produce our conscious thoughts. Nevertheless, our intuitions about our thinking exert a powerful influence on our actions. It is one thing to know that coherence is more multiform than it consciously seems, but another to read or write accordingly—or even to know what it might mean to do so.

*Culturally, the Text Is the End of Writing*

Writing is not speaking, and the features that differentiate the two concentrate the mind of all involved on the text. Writers are often told that they have to approach writing more systematically than speaking because readers are absent. That's true enough. But more than the absence of readers, what shapes the writing process and our ideas about it is the presence of the text.

In our practices as in our ideas, writing and reading are both focused almost entirely on the text, not just as a means but as an end. The writer's work is to produce a text, which then becomes *the work*. Thus instantiated, that work seems immediately present to us: you now see these words, this page; you can scratch out a word, dog-ear a corner, or even nibble it. We store and preserve writers' work; we even design furniture, buildings, and machines to do the job. Reading leaves no tangible product for others to save or admire: in fact, the best record of what a reader understands (or as we say, what "the text means") remains the text itself.<sup>15</sup> Moreover, the writer's work (process) involves lots of conscious and visible effort, often consuming significant time and resources. Ideally, we say, texts are written with effort so they can be read with ease. Accordingly, we expect reading to proceed unconsciously, effortlessly, and under the writer's direction—if, that is, the writer has done her job. If a text is coherent or clear, it's because of what the writer unilaterally puts into it and the reader unilaterally takes out. And reading can begin only after the writer is finished, only in response to the writer's work. Each element of this exchange contributes to the impression that the point of the activity is the creation and consumption of a text.

This picture of the process is so pervasive that it has become a cultural norm or folk theory codified in the form of the familiar, deeply entrenched conceptual metaphor *a text is a conduit of meaning*.<sup>16</sup> The metaphor—everywhere evident in our talk of reading, writing, and understanding—is licensed by that image of the writing process in which writers do all the hard work. But the metaphor in turn perpetuates the image. When we talk about coherence as what readers find ready-made in texts, not only does the conduit metaphor make it seem a natural use of the language, but it gives us satisfying stories to tell about how and why it happens. We don't have to invent terms or use the kind of circumlocutions common in this article (*quality of the reading experience, a reader's realization of coherence, a reading that feels coherent*, and so forth). The plotline is a classic—writer acts, reader reacts, and success is a meeting of the minds.

*Psychologically, the Text Is the Most Salient Cause of Coherence*

The conduit theory satisfies not only because it makes common sense, but also because it offers ready explanations for outcomes: its lines of causation are direct and agency is clear, so that responsibility for success or failure is easily assigned.

The theory rests on two familiar, deeply embedded habits of mind. The first is our tendency to attribute qualities of experience to proper-

ties of objects.<sup>17</sup> It is simply easier to think of our coherent understanding as a mental *record* of properties of a text than as a specific kind of interaction between properties of a text and properties of our minds and bodies. The second, related habit of mind is our bias toward a single, salient cause. Every effect has uncountably many causes. The trick in investigating, understanding, or dealing with them is to know which are most salient. Research shows that people have a strong bias in what causes they find salient: we are drawn to causes that are proximate in time and space, that are unexpected rather than routine, that involve the presence of objects or events rather than their absence, that leave more rather than less vivid mental images, and that are consistent with our view of how the world works, along with other characteristics.<sup>18</sup> The set of salient causes is narrowed still further when the issue is not a conceptual problem (such as knowing how coherence works) but a pragmatic one (such as knowing how to write coherently). In those cases, people tend to zero in on the smallest plausible set of salient *and accessible* causes: when the task is to get something done, we prefer to think that the “real” causes are those we can change, with less accessible causes coming to seem “distant,” more like “contributing factors” than causes worth addressing.

This myopia closes our eyes to much truth, but as actors it helps us keep our eyes on the ball. In the case of coherence, even our broad-brush account of the reading process identifies too many factors for anyone to keep in mind under the pragmatic demands of producing a text that readers will understand coherently. The temptation is strong to do what people do when they have to act in complex situations, to think, *Oh come on now, what really matters is a lot simpler than that*—a thought, no doubt, some of you entertained several pages ago. Answering that temptation is the text. It is a highly salient factor that is present, proximate, vividly in mind, and that slots neatly into a good causal story. It seems to define the activity itself—writers write to produce a text. And it is the most accessible factor.

No account of the complex interaction of factors that contribute to a reader’s coherent understanding can compete with the seemingly self-evident fact that here in hand is the *real* cause of coherence. It is no accident that this commitment to the text as the cause of understanding has always dominated the centuries-old guidebook tradition. We can think of many reasons for its persistence, but central among them is that it feeds a writer’s need to know what to do with the text at hand: *To help me write coherently, tell me how to design this text.*

## Writing Coherently

Together, the previous two sections highlight a defining dilemma of writing studies, one almost unique among the humanities. Traditional advice about coherence has been next to useless for anyone who really needs it, in part because it has been based on inadequate theories that have mischaracterized what coherence is, how it works, and why it matters. As scholars, our responsibility is to develop the most comprehensive understanding we can of the remarkable processes by which readers and writers make complex texts simple enough for a human mind to manage. But theoretical understandings do not translate directly into usable advice. Writing studies still remembers the cautionary tale of a time when teachers, enthralled by the apparent explanatory power of transformational generative grammar, decided they could solve the ubiquitous grammar (that is, correctness) problem by teaching TG grammar to children. The disaster that proved to be, along with related failures, has left a legacy so strong that one of the most widely shared tenets of writing studies remains that we don't teach grammar because teaching grammar never works.

So in addition to the considerable challenge of understanding coherence, writing studies faces the challenge of discovering, first, what parts of that knowledge might be relevant to writers and, then, what form that knowledge must take to be usable. To do so, writing studies must find ways to help writers accommodate to the actual workings of coherence: not only the general outlines—that it emerges from interactions with many, widely distributed features, shaped by many acts of meaning coordinated on the fly—but also the specific processes that it comprises. At the same time, that help must accommodate itself to the conscious resources that writers use to understand and manage their pragmatic problem: to generate a text that readers judge to be coherent. In this section and the next, we address the question of usable knowledge of coherence.

### *Managing the Writing Process*

It would be impossible to offer an account of the writing process corresponding to our sketch of reading: there is just not enough reliable research to support it. But even if we had a good account, it would have little effect on writers. Most of the processes by which we compose coherent texts are as much beyond our immediate control as are those of composing a coherent understanding.

Like many complex and challenging activities, composing is often most successful when it approaches the state psychologists call “flow,” when the unconscious takes over and the writer, thinking only of goals, not means (*throw strikes, be clear*), has the experience of seeming to become one with the text or the writing—the words coming, as it were, on their own. This ideal of flow—fluency—is not aided but undermined when a writer attempts to intervene consciously in the unconscious aspects of the process. Nor is it aided by declarative knowledge (descriptive or prescriptive) of the arcana of linguistic structure. No one needs to know the definition of verbal particles or dangling participles to write well, and many who do know them write poorly. As writing studies has become fond of saying, *No one writes by rule*.<sup>19</sup>

However, just as reading includes conscious activities that frame and partly control the unconscious processes of understanding, so writing choreographs moments of unconscious composing within a framework of conscious activity. As the research unequivocally shows, moments of flow in writing and elsewhere are rare, transient, and the product of past experience and present preparation. In other words, it’s the conscious work people have done and now do that makes possible moments of difficult, unconscious achievement—something every thoughtful sports coach, dance or music teacher, and writer knows.

The effects of conscious framing on unconscious activity are what best explain the value of the large body of what writing studies calls process research.<sup>20</sup> That work provides primarily an “outside” view of composing, and so offers little insight into its unconscious processes: what is called process involves methods and procedures identified chiefly through a kind of “best practices” research that evaluates the effectiveness of specific writing activities.<sup>21</sup> The practices identified in that research range widely, but almost all entail consciously following steps or creating situations that put writers in a productive relation to their goals, material, text, and readers. They slow writers down, add intermediate stages, direct their attention, and generally prompt them to create fuller and more coherent mental representations that support their unconscious composing processes. It would be welcome knowledge if researchers could explain how these conscious procedures support unconscious composing; but for writers, it is enough—it satisfies—to know that they do.

### *Using the Text as a Surrogate for Readers*

As much as writers need to understand writing, they need to understand reading and readers more. It would seem that writers have long known this. No advice has been intoned more often or more piously



than “Consider your audience.” A laudable goal, to be sure, but less than useful advice. Every time he hears it, Colomb imagines coming upon a writer, frozen before a blank computer screen, hands poised at the keyboard, staring intently at one of those “Who’s Your Reader?” checklists, filled out and with wallet-sized snapshots clipped around the edges—*What are you doing?—Considering my audience*. A scene to be found (admittedly, without the snaps) all too often.

Writers will not understand readers or reading just by thinking hard about their audience. But crash courses in cognitive science or linguistics won’t do the job either. *As writers*, we can’t use information about the role of spreading activation in selecting from widely activated knowledge only those portions predicted by schema theory<sup>22</sup> any more than we can use information about exactly how readers are easily able to recognize words even when their letters are scrambled. We might as well stare at head shots. But we can use the consequent lessons about readers: that understanding proceeds top-down, so that readers recognize parts most easily when they have a hypothesis about the whole into which they fit; or that to understand sentences readers need to be able to find the story (text world) in them—not to mention some procedural tips about using spell checkers and picking out subjects when revising. Usable knowledge about readers offers specific ways of considering their relation to a text, tools for anticipating what readers will need in order to come to a coherent understanding.

Writers cannot learn what readers will need by simply reading their own texts. They cannot experience those texts as their readers will, not only for the reasons usually given—their goals differ, they cannot know readers’ minds, they know too much both about their material and about what they mean to say—but also because writing involves so much reading and rereading that writers encounter their own text piecemeal, in all of its incarnations. That’s why experienced writers so often employ and students are forced to engage surrogate readers: businesses do user testing, scholars preview arguments in seminars and conferences, consultants walk through presentations in-house, students “workshop” papers, and so on. These all point writers to what they cannot see in their text for themselves.

Surrogates help, but only to a degree. For one, they seldom get involved until near the end. Talking with others, we “repair” the coherence of our conversations as we go. Writing for others, it may be better to learn near the end what needs repair than not to know it at all; but it would be better still to have some sense of it as we go. But even if surrogates are available early, we often can’t use them as we go. For those texts in which coherence matters most, writers need to be alone with their thoughts, to have the chance to wrestle not with a reader but with

themselves and their material, at least for a time. In such periods of reflection, writers have to retain an orientation toward readers, a sense of speaking for oneself but not to oneself. But too much early engagement with readers can be a detriment: no one wants a reader always at her shoulder, responding to each sentence or paragraph as it comes. Even when writers solicit early responses through procedural strategies such as oral rehearsals or advance summaries for colleagues, they may gain less from the responses than from the experience of hearing for themselves what their ideas are like when shared.

So in addition to procedures for engaging readers or their surrogates, writers need ways of thinking about their material and their text that help them keep readers in mind at those points when they can't or don't want to have a reader nearby. They need ghost readers, with whom they can engage in an internal dialogue that lets them zero in on their texts without falling into the trap of making the text the end of writing.

We have long been accustomed to seeing most of the texts we read as surrogates for the writer, as a means of engaging the ideas, beliefs, needs, and goals of another mind. With a better understanding of readers, reading, and their relation to texts, it now seems possible to become accustomed to seeing the texts we write as surrogates for the ideas, beliefs, needs, and goals of our readers, as another means of engaging, rather than just informing or manipulating other minds. But to do that as we write, in ways that matter for what we write, we need usable models of the text, ones that satisfy writers' need to focus on their text as the prime cause of their success or failure, but do so in a way that keeps them oriented to readers by maintaining an ongoing dialogue as the ground from which the text—and its coherence—grows.

Because the basis for the experience of coherence is as multiform as the texts that prompt it, writers need not one model, but several, each focusing on a different aspect of the text's structure that may provide important support for coherence. What these models cannot do is what the guidebook tradition has usually done, offer features to copy or rules to follow: *Make your text look like this*. Nor can they gesture toward the text but really avoid it: "Don't explain too much."<sup>23</sup> What they must do is focus a writer's conscious attention on the page in ways that frame the unconscious processes of composition as an ongoing engagement with readers' minds. The last two decades have seen the emergence of several such models, starting with a model of sentence structure that helps writers support readers' efforts to generate a consistent text world,<sup>24</sup> and including models of global text structure (traditionally called organization), of argument structure, of elements of the transactional structure, and others.<sup>25</sup> But these are only the beginnings of a complete repertoire of usable models, and we should expect more to come.

## Textual Coherence

We began with a definition of coherence not as a property of texts but as a quality of experience, a redefinition we believe to be crucial for any adequate understanding of coherence and how writers achieve it. But we do not imagine that any redefinition could end talk of textual coherence. Nor would we want to, since we doubt that that readers or writers could or should be persuaded not to look to the text when the question of coherence arises. But to talk to writers about how their texts achieve coherence, we must again confront the problem of definition with which we began: the processes underlying a reader's experience of coherence are so counterintuitive that any description of them must rub against the grain of the language. So we earlier resorted by turns to awkward circumlocutions or to more natural sounding terms used ~~under erasure~~ or under a rain of mental "scare" "quotes." It is as though writing studies has reached a moment akin to that Niels Bohr famously spoke of at the beginning of this century, when physics began to be too counterintuitive for words: "We must be clear, when it comes to atoms, language can be used only as in poetry."

To be usable, what we say to writers must help them choreograph the elaborate dance of conscious and unconscious that is writing. Yet it is clear that the language that best describes the facts of coherence will not do that. Writers need a language of coherence, as Bohr put it, "not so nearly concerned with describing all the facts as with creating images." It is not true, what many guidebooks assume, that writers are better off knowing all the facts and rules they can memorize. But it is just as untrue, what many now say, that writers are better off knowing none of the facts about the structure and effects of their texts. Writers won't stand for that: should writing studies decline, writers will fill our silence for themselves or find someone else who will, inventing or borrowing the kind of rules and prescriptions that so often prove more harmful than helpful. What writers need from writing studies are the images provided by usable models, firmly grounded in the facts, but in a language that evokes rather than thwarts their intuitions.

So coming out from under the scare quotes, we turn to a definition of textual coherence in language that makes the most sense to writers, even as we know that by doing so we reenact a conceptual metaphor grounded in a false theory. We encourage writers to think in terms of coherent understandings that are caused by coherent texts: that way of thinking fits the language, encourages useful behaviors, and focuses the mind productively. But we resist any tendency to see coherence as a property passed from the text to the understanding, albeit via more twists and turns than we used to think. Instead, we offer an image not of

conveying coherence but of *supporting* it. A text is coherent when it supports readers in achieving a coherent understanding.

The image of support helps writers keep in mind that writing coherently usually involves far more than a perspicuous plan of organization. A single support may sometimes be sufficient, but more is usually better. Conversely, the image also reminds writers that writing is seldom a game of perfect and never a game of unilateral control. Writers have to resist the temptation to think that if they find the perfect design and get everything in their text just right, readers cannot but respond as they wish. Whether a certain constellation of support is adequate for a given reader to reach coherence is a matter of that reader's situation, purposes, and knowledge. Because readers do not need a text to support coherence in every way, and would seldom notice if it did, designing a text coherent enough is in effect a gamble for writers, balancing the risks that readers might not find the support they need against the costs of providing it (not just time and effort but also compromises with other values: for instance, the more an argument explores the nuances of its reasoning, the less easily readers will realize its core structure). Accordingly, writers need to think of textual coherence not as a single feature, present or absent, but as a graded quality, a matter of more or less. The coherence of a text is best thought of as a measure of the number of ways that it supports a coherent reading experience: the more and stronger the forms of support, the more coherent the text.

## Conclusion

We began with the question of what a writer needs to know about writing coherently. If the discussion has sometimes seemed to range far from coherence itself, that is part of the point. Coherence in texts is neither an end in itself nor a feature all its own. Without coherence, texts are for the most part not much good to us. By the same token, without a use, coherence isn't much good to us either. Not that we can't take considerable aesthetic pleasure in a text's design, whether in an elegant, organic design that seems to unify each feature from top to bottom or in spare, perfect utility. But that's not usually why we make texts coherent. That's also not *how* we make them coherent. If writers hope to be coherent, they do indeed have to attend to the design of their texts, and the more they know about design the more successful that attending can be. But there remains a yet larger task: what writers most need to know and what writing studies most needs to find are those forms of attending to design that keep writers focused on where coherence happens, in the minds and actions of their readers.

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## NOTES

- 1 William Strunk and E. B. White, *The Elements of Style*, 4th ed. (New York: Longman, 2000), 15; hereafter cited in text.
- 2 Stanley Fish, *Doing What Comes Naturally: Change, Rhetoric, and the Practice of Theory in Literary and Legal Studies* (Durham, NC: Duke University Press, 1989), 372.
- 3 Although this is ordinary language, it is thoroughly and often misleadingly metaphoric (*package neatly, manage, limits of our capacities*): it treats ideas and meanings as contents, thinking and speaking as containers, and consciousness as the mind's eye. Of course, the term *coherence* also has a metaphoric basis grounded in a false theory of language and understanding. As will become apparent, our discussion will both use and resist this language throughout.
- 4 Rosenblatt, following Dewey and Bentley, argued in favor of *transaction* rather than the dyadic *interaction* to describe the complex web of causal factors contributing to any understanding of a text. "'Transaction' designates, then, an ongoing process in which the elements or factors are, one might say, aspects of a total situation, each conditioned by and conditioning the other" (Louise M. Rosenblatt, *The Reader, the Text, the Poem: The Transactional Theory of the Literary Work* [Carbondale: Southern Illinois University Press, 1994], 17). Our account is similarly transactional (Syverson calls it "ecological," a term which given Dewey's use of organic metaphors would likely have suited him as well); but we will also show why it is not so easy to efface the interactive centrality of the text in any discussion of coherence. Margaret Syverson, *The Wealth of Reality: An Ecology of Composition* (Carbondale: Southern Illinois University Press, 2000).
- 5 Although we draw most of our examples from genres that have immediate pragmatic or conceptual uses (so-called "instrumental" texts), every text is written and read for some purpose. Aesthetic pleasure, entertainment, self-discovery, eavesdropping on the thoughts of others, even passing time are all uses that affect a reader's understanding and so sense of coherence. We have chosen examples in which the effects of purpose on coherence are more evident and more easily identified. But we believe that purpose and coherence are always interrelated, no matter what the genre, and so we would argue that the basic structure of our account holds (with suitable adjustments) for texts of all kinds.
- 6 For accounts of the coherence-making processes of consciousness from, respectively, psychological, neuropsychological, and philosophical points of view, see Bernard J. Baars, *A Cognitive Theory of Consciousness* (New York: Cambridge University Press, 1988); Gerald Edelman, *Bright Air, Brilliant Fire: On the Matter of the Mind* (New York: Basic, 1992); and Daniel Dennett, *Consciousness Explained* (Boston: Little, Brown, 1991) and *Intentional Stance* (Cambridge, MA: MIT Press, 1987). The term *coherence* is rare in cognitive science, unless the situation under study concerns texts or other representations. This is not surprising, given that the categorical prototype is textual coherence and that so much of the language for talking about coherence grows out of the study of texts.
- 7 Edelman, *Bright Air, Brilliant Fire*, 119.
- 8 For a comprehensive, only moderately technical overview of vision, see Nicholas Wade and Michale Swanston, *Visual Perception: An Introduction*, 2nd ed. (Philadelphia: Psychology Press, 2001). The following discussion is indebted to Dennett, *Consciousness Explained*.
- 9 Dennett, *Consciousness Explained*, 357.
- 10 There is a large body of research on text processing generally and a growing research base on coherence in text processing. Most of it is in the form of discrete experiments, and the few synthetic accounts tend to make the case for one of many competing models. For a recent encyclopedic reference work, see Arthur Graesser, Morton Ann Gernsbacher, and Susan Goldman, ed., *Handbook of Discourse Processes* (Mahwah, NJ: Lawrence Erlbaum, 2003). For useful reviews of current thinking, see P. W. Foltz, "Comprehension, Coher-

ence and Strategies in Hypertext and Linear Text," in *Hypertext and Cognition*, ed. J. F. Rouet and others (Hillsdale, NJ: Lawrence Erlbaum, 1996); Danielle McNamara and others, "Are Good Texts Always Better? Interactions of Text Coherence, Background Knowledge, and Levels of Understanding in Learning from Text," *Cognition and Instruction* 14 (1996): 1–43; and Arthur Graesser, Danielle McNamara, and Max Louwerse, "What Do Readers Need to Learn in Order to Process Coherence Relations in Narrative and Expository Text?" in *Rethinking Reading Comprehension*, ed. Anne Sweet and Catherine Snow (New York: Guilford Press, 2003), 82–98. For the most influential formulation of the text base, see Walter Kintsch, *Comprehension: A Paradigm for Cognition* (Cambridge: Cambridge University Press, 1998); and Walter Kintsch and Teun Van Dijk, *Strategies of Discourse Comprehension* (New York: Academic Press, 1983). For text worlds, see Gilles Fauconnier, *Mental Spaces: Aspects of Meaning Construction in Natural Language* (Cambridge, MA: MIT Press, 1985); Alan Garnham, *Mental Models and the Interpretation of Anaphora* (Philadelphia: Taylor and Francis, 2001); Ronald Langacker, *Concept, Image, and Symbol: The Cognitive Basis of Grammar* (Berlin: Mouton de Gruyter, 1990); and Paul Werth, *Text Worlds: Representing Conceptual Space in Discourse* (London: Longman, 1999). For collections of representative studies, see Bruce Britton and Arthur Graesser, ed., *Models of Understanding Text* (Mahwah, NJ: Lawrence Erlbaum, 1996); Morton Ann Gernsbacher and T. Givón, ed., *Coherence in Spontaneous Text* (Philadelphia: John Benjamins, 1995); Wolfgang Heydrich, Fritz Neubauer, János S. Petőfi, and Emel Sözer, *Connexity and Coherence: Analysis of Text and Discourse* (New York: Walter de Gruyter, 1989); Robert F. Lorch Jr. and Edward J. O'Brien, ed., *Sources of Coherence in Reading* (Hillsdale, NJ: Lawrence Erlbaum, 1995); Gert Rickheit and Christopher Habel, ed., *Focus and Coherence in Discourse Processing* (New York: Walter de Gruyter, 1995); and Teun Van Dijk, ed., *Discourse as Structure and Process* (London: Sage, 1997).

11 The multiplicity of these representations helps to explain why "difficult" or "experimental" texts often come to seem coherent, despite pointed refusals to offer conventional supports for coherence: if readers are motivated to work hard enough, they need not be defeated by gaps or contradictions in the text world, inconsistent or contradictory global structures, distorted content genres, or other refusals to support coherence, so long as the points of difficulty are isolated and not crucial to the reader's purpose. A Calvino or Borges may ostentatiously refuse readers a few traditionally ratified supports for coherence, but they also offer many others. This multiplicity also helps to explain why hypertext has failed to fulfill predictions that it would usher in a brave new world of in- or non-coherence; the architectures may be new and the global text structures more flexible, but the experience of coherence is proving to be much the same.

12 In a study based on Hutchin's work in distributed cognition, Margaret Syverson shows how the meaning of a text is distributed among many agents, artifacts, and activities, so that understanding a text always involves factors that are part of the text yet not in the text. See Syverson, *The Wealth of Reality*; this breadth of relevant factors has sometimes been acknowledged but not directly studied in the comprehension research, which designs experiments to limit them. Situational factors have been the subject of much recent research in writing studies. See, for example, Charles Bazerman, "Physicists Reading Physics: Schema-laden Purposes and Purpose-laden Schema," *Written Communication* 2 (1985): 3–23; Patrick Dias and others, *Worlds Apart: Acting and Writing in Academic and Workplace Contexts* (Mahwah, NJ: Lawrence Erlbaum, 1999); Aviva Freedman and Graham Smart, "Navigating the Current Economic Policy: Written Genres and the Distribution of Cognitive Work at a Financial Institution," *Mind, Culture, and Activity* 4 (1997): 238–255; Bruno Latour, *Science In Action: How to Follow Scientists and Engineers through Society* (Cambridge, MA: Harvard University Press, 1987); James Porter, *Rhetorical Ethics and Internetworked Writing* (Greenwich, CT: Ablex, 1998); and Paul Prior, *Writing/Disciplinarity: A Sociohistoric Account of Literate Activity in the Academy* (Mahwah, NJ: Lawrence Erlbaum, 1998).



- 13 Jerome McGann, "The Alice Fallacy; or, Only God Can Make a Tree," in *Beauty and the Critic*, ed. James Solderholm, (Tuscaloosa: Alabama University Press, 1997), 54–55.
- 14 Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1987).
- 15 These conditions do not obtain for literary, civic, philosophical, and other texts that achieve canonical status. For them, the work of reading often surpasses the work of writing, prompting in turn a large body of associated texts which, not being canonical, are expected to be understood with ease.
- 16 The metaphor and its implications were first studied by Reddy. Michael J. Reddy, "The Conduit Metaphor—A Case of Frame Conflict in Our Language About Language," in *Metaphor and Thought*, ed. Andrew Ortony (Cambridge: Cambridge University Press, 1979). Since then, it has become widely known and much-investigated for its influence on uses and ideas of language.
- 17 For attribution theory, see John Harvey and Gifford Weary, *Attribution: Basic Issues and Applications* (Orlando, FL: Academic Press, 1985); Lawrence Rosen, *Other Intentions: Cultural Contexts and the Attributions of Inner States* (Santa Fe, NM: School of American Research Press, 1995); and Dan Sperber, David Premack, and Ann James Premack, ed., *Causal Cognition: A Multidisciplinary Debate* (Oxford: Clarendon Press, 1995).
- 18 Bias in causal reasoning has been widely studied. The most respected synthesis of this research is Jonathon Baron, *Thinking and Deciding*, 3rd ed. (Cambridge: Cambridge University Press, 2000). For a basic discussion, see Joseph Williams and Gregory Colomb, *The Craft of Argument*, 2nd ed. (New York: Longman, 2003).
- 19 From these facts some theorists of writing pedagogy draw the conclusion that writing skills are acquired, not learned, that there is no particular knowledge about texts or their production that writers need to know, and that learning to write requires little more than practice and informed feedback. For two thoughtful expositions of this position concerning respectively the micro and macro aspects of texts, see Patrick Hartwell, "Grammar, Grammars, and the Teaching of Grammar," *College English* 47, no. 2 (1985): 105–127, and David Dobrin, *Writing and Technique* (Urbana, IL: NCTE, 1989). For a widely promoted account, see Stephen D. Krashen, *Writing, Research, Theory, and Applications* (Oxford: Pergamon Institute of English, 1984). For flow see Mihaly Csikszentmihaly and Isabella Selega Csikszentmihaly, *Optimal Experience: Psychological Studies of Flow in Consciousness* (Cambridge: Cambridge University Press, 1988); for flow in writing see Susan K. Perry, *Writing in Flow: Keys to Enhanced Creativity* (Cincinnati, OH: Writer's Digest Books, 1999).
- 20 For a listing, search for "process" in CompFile, the marvelous on-line bibliography maintained by Richard Haswell (<http://comppile.tamucc.edu>): a recent search returned 2,232 items. Unfortunately, there are no synthetic compilations of that work. For a personal, but extremely thoughtful account of the so-called process approach, see Donald Morison Murray, *Write to Learn*, 7th ed. (Boston: Thomson Heinle, 2002).
- 21 There was a period of what was called "cognitive" research in writing studies. Most of that was concerned not with the unconscious processes of composition but with questions of procedures and practices. This work had the salutary effect of bringing significantly more discipline and empirical validity to process research. There were a few attempts at cognitive modeling in writing studies, but those models were essentially black boxes corresponding to standard procedural accounts (planning, composing, etc.). In light of the rapid advance of cognitive science, the models themselves are chiefly of historical interest, but they led to valuable arguments about the psychological importance for writers of an orientation toward readers. See Linda Flower and John Hayes, "A Cognitive Process Theory of Writing," *College Composition and Communication* 31, no. 1, (1980): 21–32, and subsequent work by Flower, especially *The Construction of Negotiated Meaning: A Social Cognitive Theory of Writing* (Carbondale: Southern Illinois University Press, 1994).



22 Walter Kintsch, "Situation Models," 114.

23 Strunk and White, *Elements of Style*, 75.

24 The first full articulation of this model was in Joseph Williams's guidebook *Style: Ten Lessons in Clarity and Grace* (New York: Scott, Foresman and Co., 1981). It was developed and expanded in subsequent editions and in the "Little Red Schoolhouse" program of writing instruction developed by Williams and Colomb (available in many forms; see URL <http://faculty.virginia.edu/schoolhouse/> and <http://writing-program.uchicago.edu/schoolhouse/>). Versions of the model are now commonplace in guidebooks of all sorts. Although research on reading processes now offers the best confirmation of the model, it was proposed before those processes were well understood, and was inspired more by case grammar and study of reader's responses than by any psychological research. For some of its early development and discussions of its rationale, see Joseph Williams, "Defining Complexity," *College English* 40 (1979): 595–609 and "Non-linguistic Linguistics and the Teaching of Style," in *Linguistics, Stylistics, and the Teaching of Composition*, Studies in Contemporary Language, no. 2 (Conway, AR: L&S Books, 1979), 24–40. The model also has significant correlations to the role of "image schemas" in cognitive linguistic models of syntax and metaphor; see Langacker, *Concept, Image, and Symbol*; Fauconnier, *Mental Spaces*; and Fauconnier and Mark Turner, "Blending as a Central Process of Grammar," in *Conceptual Structure, Discourse, and Language*, ed. Adele Goldberg (Stanford, CA: Center for the Study of Language and Information, 1996). Expanded web edition at <http://markturner.org/centralprocess.WWW/centralprocess.html>.

25 For a usable model of global text structure, see Williams and Colomb, "Perceiving Structure in Professional Prose," in *Writing in Non-Academic Settings*, Lee Odell and Dixie Goswami, ed. (New York: Guilford Press, 1986), 87–128. For argument structure and the transactional "problem statement," see Wayne Booth, Colomb, and Williams, *The Craft of Research*, 2nd ed. (Chicago: Chicago University Press, 2003) and Williams and Colomb, *The Craft of Argument*.