DANIEL T. WILLINGHAM

Author of *Why Don't Students Like School*

Raising Kids Who READ

What Parents and Teachers Can Do

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For Trisha

ABOUT THE AUTHOR

Daniel Willingham is professor of psychology at the University of Virginia, where he has taught since 1992. Until about 2000, his research focused solely on the brain basis of learning and memory. Today, all of his research concerns the application of cognitive psychology to K–16 education. He writes the "Ask the Cognitive Scientist" column for *American Educator* magazine and is the author of *Why Don't Students Like School?* (Jossey-Bass, 2009) and *When Can You Trust the Experts?* (Jossey-Bass, 2012). His writing on education has appeared in thirteen languages. He earned his BA from Duke University and his PhD in cognitive psychology from Harvard University. His website is www.danielwillingham.com.

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Introduction
Have Fun, Start Now

We're going to start this book with a quick thought experiment. Suppose you have a teenaged child. (If you actually do, so much the better.) Surveys show that the typical teen has about five hours of leisure time each weekday. How would you like your teenager to spend those five hours? To provide a little structure, I'll give you six categories of activities among which the time could be allocated. (Note that with six categories, equal time to each activity is fifty minutes.)

Relaxing/thinking	__ minutes
Playing video games/using a computer	__ minutes
Reading	__ minutes
Socializing	__ minutes
Watching television	__ minutes
Playing sports	__ minutes

Have your answers? You can compare them to the results of a survey I conducted of three hundred American adults. I've also depicted the *actual* number of minutes that teens spend on each activity, according to the national American Time Use Survey (figure I.1). For reading, the hoped-for amount among my respondents was 75 minutes. The actual time American teenagers spend reading is 6 minutes.

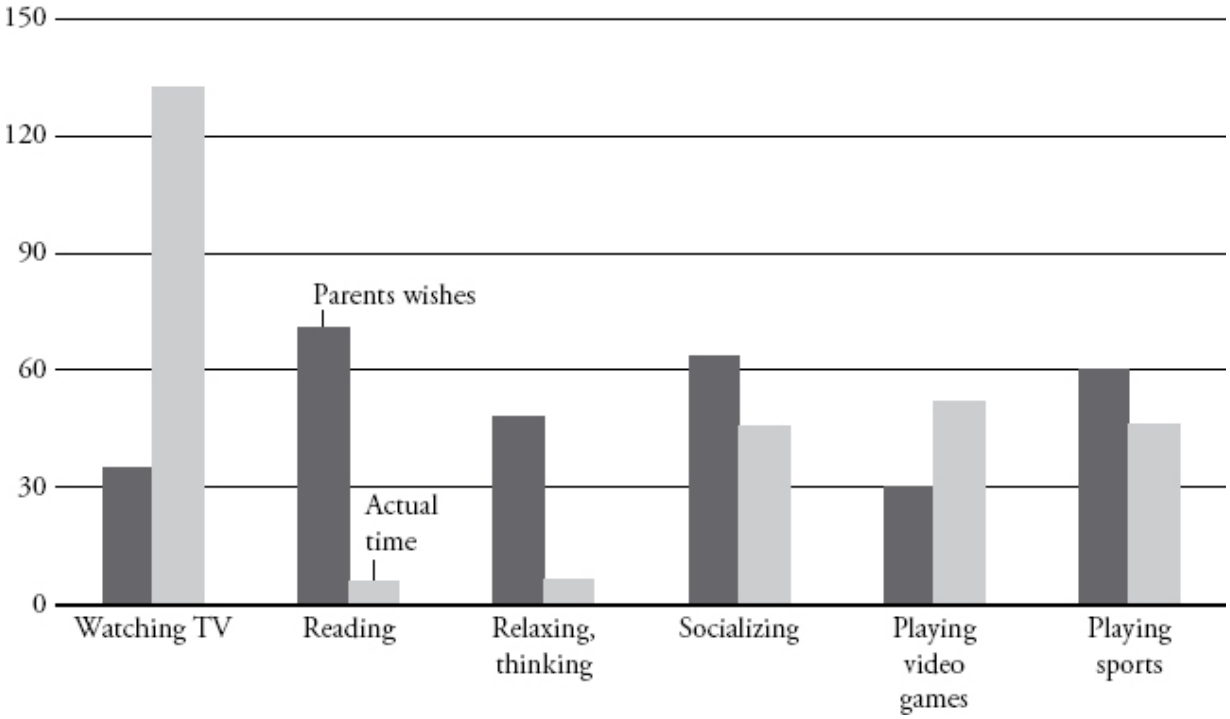

Figure I.1. Wishes versus reality in teenagers' leisure time. Darker bars show how our survey respondents hoped teenagers would spend their leisure time. Lighter bars show actual leisure time spent, according to the American Time Use Survey.

Source: © Daniel Willingham.

The purpose of this book is simple. Parents want kids to read. Most kids don't. What can parents do about that?

Of course, some kids do grow up as readers. The numbers in figure I.1 are a little deceptive because they are averages; it's not that each teenager goes home from school, reads for six minutes, and then puts the book down. Most kids don't read at all, and a few read quite a lot. Can the parents of those readers provide us with any guidance?

In my experience, most of those parents have little idea of how their kids ended up as readers. A conversation I had with an editor at the *New York Times* is typical. I mentioned I was working on this book, and he told me that his eighth grader was the kind of kid who had to be

reminded to step outside every now and then to get a little fresh air, so devoted was she to whatever book she was reading. When I asked what he and his wife had done to foster this passion, he laughed heartily and said, “Not a damn thing.”

Now, almost certainly he *has* done things that prompted his child to read. He’s a newspaper editor, for crying out loud. He probably read to his daughter when she was little, his house is probably filled with books, and so on. I’m sure he’d agree. What I think he meant by “not a damn thing” was, “We didn’t plan it.” Parents who raise readers don’t do things that look especially academic. They aren’t tiger parents, breaking out flash cards when their baby turns twelve months and starting handwriting drills at twenty-four months. Such measures are not only unnecessary, they would undercut a crucial positive message that these parents consistently send: reading brings pleasure. Most of what I suggest in this book is in the spirit of emulating nontiger parents, and I encapsulate it in this simple principle: *Have fun*.

Another principle guides the advice in this book: *Start now*. Parents tend to think about the different aspects of reading as each comes up in school. They think about decoding (learning the sounds that letters make) in kindergarten, when it’s first taught. Parents don’t think about reading comprehension at that point, because it’s not emphasized in kindergarten. If kids can accurately say aloud the words on the page, they are “reading.” But by around the fourth grade, most kids decode pretty well, and suddenly the expectation for comprehension ratchets up. At the same time, the material they are asked to read gets more complex. The result is that some kids who learned to decode just fine have trouble when they hit the higher comprehension demands in fourth grade. And that’s when

their parents start to wonder how they can support reading comprehension.

Parents often don't think about reading motivation until middle school. Almost all children like to read in the early elementary years. They like it at school, and they like it at home. But research shows that their attitudes toward reading get more negative with each passing year. It's easy for parents to overlook this change because children's lives get so much busier as they move through elementary school; they spend more time with friends, perhaps they take up an instrument or sport, and so on. When puberty hits, their interest in reading really bottoms out. A parent now realizes that her child never willingly reads and starts to think about how to motivate reading.

At these three crisis points that prompt parents to think about reading, we see the three footings for a reading foundation. If you want to raise a reader, your child must decode easily, comprehend what he reads, and be motivated to read.

How, then, to ensure that these three desiderata are in place?

Obviously, hoping for the best and reacting if a problem becomes manifest is not the best strategy. It's easier to avoid problems than to correct them. But reading presents a peculiar challenge because experiences that seem unimportant are actually crucial to building knowledge that will aid reading. Even stranger, this knowledge may be acquired months or even years before it's needed. It lies dormant until the child hits the right stage of reading development, and then abruptly it becomes relevant. That's why the second guiding principle of this book is, *Start now*. "Start now" means attending to decoding, comprehension, and motivation early in life—as early as infancy. But it also means that action to support your child's reading never

comes too late, even if your child is older and you've done nothing until now. Just start.

These three foundations also provide an organizing principle for this book. In the first chapter, you'll get some of the science of reading under your belt. How do children learn to decode? What is the mechanism by which they understand what they read, or don't? And why are some children motivated to read, whereas others are not? The remainder of the book is separated into three parts, divided by age: birth through preschool, kindergarten through second grade, and third grade and beyond. Within each part, separate chapters are devoted to how you can support decoding, comprehension, and motivation at that age. I will discuss not only what you can do at home, but what you can expect will be happening in your child's classroom.

That said, if you want to raise a reader, you should not rely much on your child's school. That's not a criticism of schools but rather a reflection of what this enterprise is all about. Let me put it this way. You've got this book in your hands, so I'm assuming you're at least somewhat interested in your child being a leisure reader. Why?

Some answers to this question are grounded in practical concerns. Reading during your leisure time makes you smarter. Leisure readers grow up to get better jobs and make more money. Readers are better informed about current events, and so make better citizens.

These motives are not unreasonable, but they are not my motives. If I found out tomorrow that the research was flawed and that reading doesn't makes you smarter, I would still want my kids to read. I want them to read because I think reading offers experiences otherwise unavailable. There are other ways to learn, other ways to empathize with our fellow human beings, other ways to appreciate beauty; but the texture of these experiences is different

when we read. I want my children to experience it. Thus, for me, reading is a value. It's a value—like loving my country or revering honesty. It's this status as a value that prompts to me to say, "Don't expect the schools to do the job for you."

I'm reminded of a parent I know who was dismayed when his child announced that she was marrying someone of a different faith. Her father asked how the children would be raised, and she made it plain she was not much concerned one way or the other. Although he and his wife had not made religious identity much of a priority at home, he was nevertheless surprised and hurt by his daughter's decision. "I can't understand it," he told me. "We sent her to Sunday school every week." He had subcontracted the development of this core value.

If you want your child to value reading, schools can help, but you, the parent, have the greater influence and bear the greater responsibility. You can't just talk about what a good idea reading is. Your child needs to observe that reading matters to you, that you live like a reader. *Raising Kids Who Read* aims to show you in some detail how to do that and with a sensibility that embodies two principles: we have fun, and we start now.

Notes

"makes you smarter": Ritchie, Bates, and Plomin (2014).

"better jobs and make more money": Card (1999); Moffitt and Wartella (1991).

"maker better citizens": Bennett, Rhine, and Flickinger (2000).

Chapter 1
The Science of Reading

Scientists have learned a lot about the mental machinery that supports reading, and this research base inspires much of what I suggest you do throughout this book. So we need to get the basics of these scientific findings straight. I'll introduce scientific findings about reading as they become relevant, but this chapter starts with three foundational principles, to which we'll return again and again: (1) the sounds that letters make (not their shape) pose the real challenge as children learn to read print, (2) comprehending what we read depends mostly on our general knowledge about the topic, and (3) the key to motivation lies in getting kids to read even when they aren't motivated to do so.

The Role of Sound in Reading

We think of reading as a silent activity—consider a hushed library—but sound in fact lies at its core. Print is mostly a code for sound. English uses some symbols that carry meaning directly; for example, "$" means dollars, "@" means at, and ":-)" means smiling. But "bag" is not a symbol for a paper sack. It's three letters, each of which signifies a sound; together, the sounds signify a spoken word. English is not alone in using a sound-based writing system. All written languages have some number of symbols that carry meaning, but the workhorse of communication is a sound-based code.

Because writing uses visual symbols that signify sound, children who are learning to read must master three things. First, they must be able to distinguish letters. They

must notice that “j” has a little tail that distinguishes it from “i.” (I’ll put letters and words in quotation marks when emphasizing what they look like on the page.) Second, they must learn the mapping between these visual symbols and their auditory counterparts—for example, that the letter “o” sometimes goes with one sound (as in the word TONE) but at other times goes with another sound (as in TON). (I’ll put letters and words in small capital letters when emphasizing their sound.)

There’s a third thing to be learned, and this is the least intuitive for us to appreciate; learning the mapping is not quite what you think. We think that the sound that goes with “t” is TEE, but that’s actually *two* sounds, a consonant and vowel sound. Children must be able to hear that TEE is two sounds; they must be able to hear individual speech sounds. To read, children must be able to know what T sounds like *in isolation*, because that’s the sound that goes with the letter “t.” That turns out to be especially hard for kids. Let’s start with the easier tasks and work our way to this tougher one.

The Visual Task in Learning to Read

Most kids find distinguishing one letter from another relatively easy. Sure, some letters are confusable because they have similar shapes (e.g., B, D, P, R) or are the mirror image of another letter (e.g., M/W, b/d). And beginning readers do indeed mix up letters that look similar, a phenomenon also observed in languages other than English. But we shouldn’t think this problem is worse than it is. The fortunate fact is that there aren’t that many letters to learn, so with some practice, kids get it (figure 1.1).

Figure 1.1. Confusable letters. Even experienced readers occasionally mistake one letter for another, a problem that can be made more likely by unusual fonts. Overall, however, distinguishing one letter from another is not the most common obstacle to learning to decode.

Source: © Jason Covich.

Learning Letter-to-Sound Mappings

Learning which sound goes with which letter seems rather obviously more challenging. As I noted, some letters do double-duty for sounds: “o” represents one sound in ton and another in tone. There are actually forty-four speech sounds used in English, so such doubling up is inevitable given that we have twenty-six letters. Worse yet, it’s not just that two sounds go with a single letter. Sometimes a single sound goes with either of two letters. For example

“y” in the middle of words often sounds like “i” as in RHYME.

If you were creating an alphabet for English from scratch, it would be sensible to create forty-four letters and match each speech sound with one letter. But written English, alas, was not created from scratch. Our language is a mongrel: Germanic origins, heavily influenced by Scandinavian (Norman) and French invasions, and later by the adoption of Latinate and Greek words. That’s a problem because when we borrowed words, we frequently retained the spelling conventions of the original language.

In consequence, our letter-to-sound mapping is messy. That has caused misery among generations of school children, although it has provided fodder for light rhymers:

When the English tongue we speak. Why is break not rhymed with freak? Will you tell me why it’s true We say sew but likewise few? And the maker of the verse, Cannot rhyme his horse with worse? Beard is not the same as heard Cord is different from word. Cow is cow but low is low Shoe is never rhymed with foe. Think of hose, dose, and lose	And think of goose and yet with choose Think of comb, tomb and bomb, Doll and roll or home and some. Since pay is rhymed with say Why not paid with said I pray? Think of blood, food and good. Mould is not pronounced like could. Wherefore done, but gone and lone— Is there any reason known? To sum up all, it seems to me Sound and letters don’t agree

And yet things are not as bad as you might first think. English pronunciation looks more consistent when we take context into account. A well-known example of the anything-goes character of English spelling is the invented word “ghoti,” to be pronounced FISH—provided one pronounces GH as in the word “enough,” O as in the word “women,” and TI as in the word “motion.” Cute, but there’s a reason most would pronounce “ghoti” as GOATEE. The context of each letter matters. When “gh” appears at the start of a word, it’s pronounced as a hard g (e.g., GHASTLY, GHOST). In the middle of a word, it’s silent (e.g., DAUGHTER, TAUGHT). It’s pronounced as F only at the end of a word (LAUGH, TOUGH).

In fact, researchers have found that consonants at the start or end of single-syllable words are pronounced consistently about 90 percent of the time. Vowels in the middle of single-syllable words are pronounced consistently only 60 percent of the time, but when the vowel is an exception, the final consonant frequently helps to determine the pronunciation. So, for example, the vowel string “oo” is usually pronounced as in the word BOOT, but sometimes it’s pronounced as in the word BOOK. It turns out that “oo” has the latter pronunciation only when it’s followed by “k” or “r” (BOOK, BROOK, CROOK, SHOOK, POOR, DOOR, FLOOR).

There’s another reason to take heart about the seemingly crazy pronunciation of English words. Many words that break pronunciation rules are very common. “Gone,” “give,” are,” “were,” and “done” all break a rule: *when a word ends with “e,” the vowel sound is long*. (Hence, “give” should rhyme with HIVE.) Although these words break the rule, they appear so commonly they are good candidates simply to be memorized as exceptions.

So there’s no doubt that learning the mapping between letters and sounds is a challenge, but that’s not the aspect of learning to read that most often gives kids trouble. The sticking point is the hearing of the speech sounds. Let’s look at why that’s so hard.

Learning to Hear Speech Sounds

What sound do you associate with the letter “p”? You might think of it as PUH—that’s what parents often tell children—but that’s *two* sounds: the sound of the letter “p” and then a vowel sound after it, UH. The sound associated with the letter “p” is actually just a plosion of air—your vocal chords don’t vibrate at all. In fact, that’s the same plosion of air you make for the letter “b.” The only difference is that

when you say BEE, your vocal chords vibrate to make the vowel sound *at the same time* you make the plosion of air, whereas when you say PEE, the vocal chords start to vibrate only about .04 seconds *after* the plosion. Yup. The difference between “p” and “b” hinges on this .04 second difference. So asking, “What sound does the letter ‘p’ make?” is nonsensical. The very definition of the sound depends on its relationship to neighboring sounds. It’s actually impossible to say P in isolation.

This problem—the difficulty of isolating speech sounds—is even worse than that. Individual speech sounds also vary depending on the surrounding context. Try this. Put your hand in front of your mouth and say POT. You feel the puff of air when you say the P. Now do the same thing saying SPOT. The puff is stronger for POT than SPOT. So we talk about “the sound the letter ‘p’ makes” as if there is one sound associated with “p,” but that’s an abstraction, an ideal.

We’re not done yet. Understanding where one word ends and another begins is important for reading—you need to know which sounds are supposed to clump together to form a word. But kids don’t hear individual words as well as adults do. In a standard test of this ability, you give the child a short sentence to keep in mind—say, “I like yellow bananas.” You give him a small basket of blocks and ask him to arrange a line of them, one block for each word in the sentence. There’s no guarantee that the child will pick four blocks for the sentence. It might be three, or five, or seven. He is just not sure where words begin and end (figure 1.2).

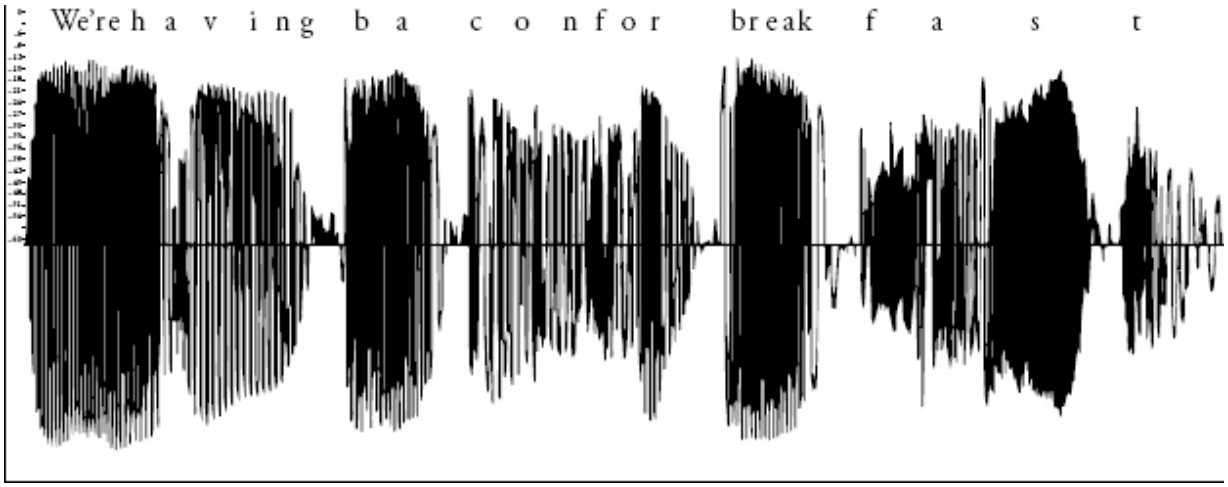

Figure 1.2. Visual representation of a sentence. The author is saying, “We’re having bacon for breakfast.” Time moves left to right, and the vertical axis shows sound intensity. When people speak, there are not clean breaks between each word, which is probably why children have trouble knowing where words begin and end.

Source: © Daniel Willingham.

Children’s ability to hear individual speech sounds can be tested in different ways. They might be asked to name the sound at the beginning of a word. They might be asked if two words begin with the same sound or end with the same sound. In more challenging tasks, they might be asked to change a word by adding, removing, or manipulating sounds, for example, “If I took the word TOP and added a SSSS at the beginning, what word would it make?”

If reading is a code between written symbols and speech sounds, it’s going to be hard to learn the code if you can’t hear those sounds. Lots of research indicates that this reasonable supposition is right. Children who have trouble learning to read often have difficulty hearing individual speech sounds. At the other end of the spectrum, children who more or less teach themselves to read turn out to hear them easily. This relationship between the ability to hear

speech sounds and reading is not unique to learning to read English—you see it across languages.

So we have our first clue about how we can help kids become good readers: help them with this auditory challenge.

The Role of Knowledge in Comprehension

So far, I have discussed decoding and reading as though they were synonyms, but obviously there's more to reading than sounding out words. A child might read aloud, "the farmer in the dell," and perhaps recognize the phrase from the song, but if he doesn't know that a dell is a small valley, he's not fully understanding the meaning of what he's read. It's equally obvious that in order to understand, a reader must use syntactic rules that relate words to one another. Syntactic rules determine the difference in meaning between, "Dan wished he had sung better," and, "He wished Dan had sung better"—same words, slightly different order, quite different meanings.

We'll skip discussing the mental processes that allow us to understand the meaning of individual words like "farmer" and "in," as well as the mental processes that assign syntactic roles to individual words so that they are connected into a sentence. Fascinating as these processes are, they usually pose few problems to young readers, or when they do, it's for easily appreciated reasons. For example, a reader won't understand a text that uses unfamiliar vocabulary ("This class needs realia") or syntax so complex it's hard to unravel (e.g. "The dog that the man whom the cat saw kicked yelped"). When the former happens, you look the word up. When the latter happens, you complain of poor writing.

Building Meaning across Sentences

Processes of reading comprehension that go beyond the individual word and sentence are less obvious. There must be some way that we can make meaning across sentences—something akin to the way syntax connects meaning across words. For example, consider these two sentences: “The octogenarian scientist approached the podium to collect his Nobel prize, head down, embarrassed by the applause. He chuckled softly to himself.” To understand this brief text, we must recognize that “he” in the second sentence and “the octogenarian scientist” from the first sentence refer to the same person. We must also understand that the chuckling in the second sentence is directly related to the information provided in the first sentence; the information explains *why* he was chuckling. How do we connect ideas from the sentence we’re currently reading to something we read earlier?

The answer rests on a distinction between given and new information. Given information is stuff that you have already been told in the text. New information is stuff you haven’t. Most writing alternates between the two: you are reminded of something you were already told, and then you’re told something new. Then something old again, then something new.

For example, suppose you read, “Some beer is in the car trunk. The beer is warm.” In the second sentence, the reference to “the beer” is the given information. The given information directs your attention to an idea from an earlier sentence. *Ah*, you think, *we’re talking about the beer again*. Once you’ve focused on that idea, the new information in the sentence provides something to add, and you connect it to the given information. So you will connect “warm” in the second sentence to “the beer” from the first sentence (figure 1.3).

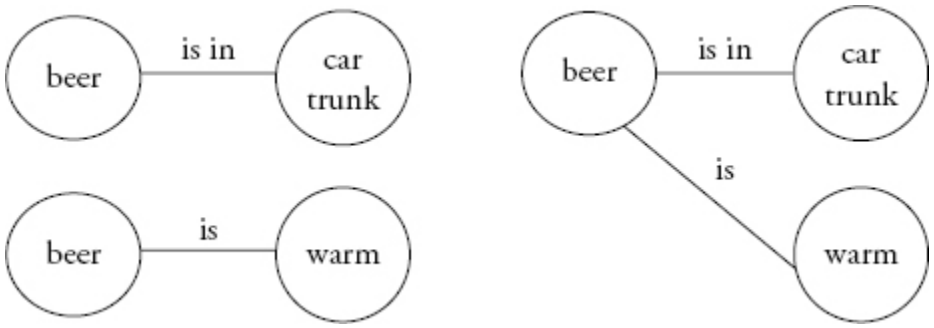

Figure 1.3. How sentences are connected. At left is a cartoon version of the formal way that a psychologist would diagram your understanding of the two sentences in the text. When you read "the beer is warm," you look for some overlap between this sentence and the ideas in the one you had already read. When you find the overlap (the reference to "beer"), that tells you it's a way to connect the two sentences. The connection is shown at right.

Source: © Daniel Willingham.

This given-new principle is powerful enough that it's jarring to read prose that violates it. For example, suppose you read: "Some beer is in the car trunk. The beer is warm. The beer is not cold." The third sentence has given information (the beer) that doesn't add anything new; if you know it's warm, obviously it's not cold. That's so odd that you might struggle to find a way to interpret the third sentence so that it *does* tell you something new. (Perhaps the repetition is meant to signal that the beer was supposed to be cold.) Likewise, it sounds very strange to read a sentence that doesn't mention any given information, as in this example: "Some beer is in the car trunk. Deciduous trees lose their leaves in the fall." You have no way to connect the second sentence to what you've read so far. That's what makes it a non sequitur.

This type of connection is important but pretty limited. I tell you something about beer; then I tell you another fact about the beer. That's fine as far as it goes; sometimes I

want to tell you several things about beer (or whatever else), so the beer is the given, and I keep telling you new things about it.

More common, however, are causal connections. For example, consider these two sentences: “Trisha spilled her coffee. Dan jumped from his chair to get a rag.” I’m sure the second sentence did not feel like a non sequitur to you; you easily connected them. But wait a minute. If connections happen when there is given and new information, where is the “given” information in the second sentence? Where did I repeat something I already told you?

The given information is not really in the text. It’s in your head. You inferred it. You know that spilled coffee makes a mess. You know that when a mess is made, people usually clean it, and often do so immediately. You know that rags are often used to clean messes.

Now the writer could have included all of this information in the text. He could have written, “Trisha spilled her coffee. The coffee made a mess on the floor. Dan wanted to clean the mess. Dan had rags in the kitchen that he used for cleaning. Dan jumped from his chair to get a rag.” In this version, the given information is made explicit, but the reason that writers (and speakers) omit information is plain: if you didn’t omit stuff that the reader knows anyway, simple communication would be terribly boring.

The author can’t include every last bit of information that’s needed to make her writing comprehensible lest she tell the reader things he already knows. But then again, every time she elects to leave out some information, she’s gambling. She’s assuming that the reader has the omitted information in memory. What if the writer is wrong? Then the reader will not be able to connect the sentences and comprehension will fail. That’s what happens when you start to read an article on some unfamiliar technical

subject: it’s written for an audience with a lot of knowledge you lack.

But comprehension doesn’t always fail. Sometimes you can deduce the missing information from the context. Reading researcher Walter Kintsch offered this example: “Connors used Kevlar sails because he expected little wind.” All I know about Kevlar is that it’s some sort of fabric. I sure didn’t know that it is used for sails, but that’s easy to infer from the context, right? So what’s the problem with reading this sentence? (See figure 1.4.) No problem. In fact, that’s one of the great pleasures of reading. You learn new things, for example, that sails can be made of Kevlar. But figuring things out in this way amounts to problem solving and solving problems takes time and mental effort. It’s not just that you have to think about what “Kevlar” might mean; it’s also that figuring that out interrupts the flow of the text in which you find it. You may lose the thread of the argument or story. A bit of this sort of problem solving is satisfying, even fun. Too much of it makes reading slow and difficult.