CHAPTER 1
Story

STORYTELLING ISN'T AN IDLE leisure activity that humans developed to while away the hours: It evolved for serious purposes, as a necessary component in the development of human culture. Without storytelling, humans could never have communicated complex information. Storytelling isn't merely characteristic or even definitive of the human condition—it's absolutely necessary to the existence of human culture.

The Development of Storytelling

Storytelling was a natural, almost inevitable consequence of human evolution. The human brain developed in response to the environmental pressures facing early hominids. Each major problem triggered some sort of change in the human body; if a problem could be solved by mental effort, an existing part of the brain took over that problem, often expanding as a consequence. Most of the time, these new mental abilities were cobbled together from a combination of existing parts of the brain, so they weren't often cleanly localized to one region of the brain. As they developed, these "mental modules" were in turn recruited to solve new but related problems.

Because mental modules aren't tightly localized, scientists can't pin them down with anatomical precision; brain function is so complex that one mental module blends into the next. This makes the job of identifying mental modules a subjective task; every scientist slices the pie a little differently. Nevertheless, some slices seem to be more popular than others. Here are four of the most commonly recognized mental modules:

- **Visual-spatial:** Handles visual perception and spatial imagination; based on pattern recognition.
- **Social:** Handles relationships with others; also based on pattern recognition.
- **Natural history:** Storage of facts about the environment and logical analysis of those facts; some sequential processing.
- **Language:** Permits communication and ties together all the other mental modules; sequential processing.

Mental Modules Interact

Once the development of language had pulled the mental modules into communication, all sorts of fascinating interactions began between them. For example, the natural history module and the social relationships module interacted in a surprising fashion. The natural history module impelled humans to inquire into the causes of phenomena they observed in their environment, but all too often a clear cause was wanting. For example, an especially important question for the early farmers was "Why does it rain?" Or, more to the point, "Why does it sometimes fail to rain?"

When language put the natural history module in touch with the social relationships module, these two modules interacted to devise an answer that made some sense: Natural phenomena were caused by "powerful people"—gods. Whenever a phenomenon lacked an obvious cause, assigning the phenomenon to a god and then explaining the apparently erratic behavior with the deity's mood swings was a simple matter. Not only did the social relationships module suggest an explanation to the problem; it also offered the solution: propitiate the god. A huge array of behaviors became associated with various gods. Some acts were forbidden; others were mandatory. And because the gods seemed so arbitrary, it behooved society to have someone on hand who could communicate with the gods. There was never any shortage of applicants for the position; whoever communicated with the gods was, essentially, in charge of the society. There, now you know where religion came from.

But the natural history module also interacted with the language module, producing "sequential thinking natural history"—science. Sequential thinking took a long time to develop, but once the idea of syllogisms and chains of deduction took hold, science took off. The conflict between science and religion becomes clearer when viewed in this fashion. Both arose from the natural history module; both attempt to explain the world in which we live. Religion takes the social relationship route, and science takes the sequential logic route. The choice between them might have more to do with relative strengths of these two modules than anything else.

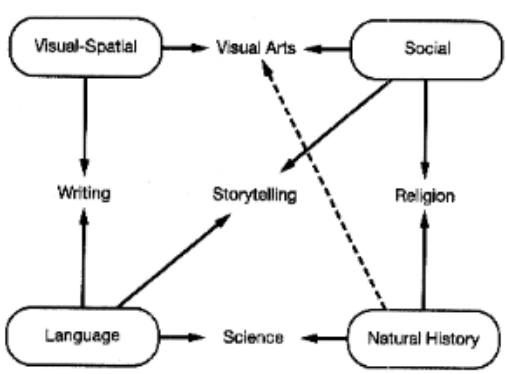

FIGURE 1.1: Interactions between the mental modules.

There are still four more interactions to consider. I lump two of them together: the combination of the visual/spatial module with the natural history and social relationships modules to produce representational art.

When visual/spatial reasoning combined with the language module, we got writing, an impressive result. And when the language module combined with the social relationships module, it produced storytelling.

For those whose spatial reasoning module is stronger than their verbal reasoning module, **Figure 1.1** (on the preceding page) shows a graphical summary of these results.

At Last, Narrative

Why is storytelling such an important component of culture? All cultures have their stories. Why are they universal? The obvious answer, of course, is that stories are the vehicle by which cultural knowledge is communicated from one generation to the next. They're not the only vehicle, of course, but they certainly play an important role in transmitting cultural information. Storytelling is an ancient technique, probably developing hand in hand with language.

But why should information be transmitted by stories? Why couldn't cultures simply compile their knowledge into a simple, compact list of important truths, and then require every young person to memorize them? This approach would probably be quicker and more efficient than the long-winded storytelling system, so why didn't any culture ever adapt such a superior alternative?

The answer has to do with the character of the information being transmitted. Most of the information content of these stories pertains to social reasoning. Some pertains to the natural history module, but the bulk of these stories concern interpersonal behavior: trustworthiness, marriage, perseverance, and so forth. The social relationships mental module relies on pattern recognition, which raises a nasty problem: How do you communicate pattern-type information to a pattern-recognizing mental module using a sequential medium such as language? In computer terms, the data is in the wrong format for the communications link!

What's needed is a reformatter, something that converts one thinking format to the other. Narrative is that reformatter. It's an ad-hoc solution to an ugly interfacing problem that arose early in the development of language.

Consider: A story is definitely a linear sequence of events; its architecture is even referred to as a "plotline." That linearity is the inevitable outcome of using language to relate the story. Yet the story's content can't be understood until the story has been completely received. If I'm downloading my email and the transmission link breaks 90 percent of the way through, I can still read the email and figure out most of its content. But if you're watching a movie in a theater and the projector breaks down 90 percent of the way through the movie, you have every right to demand a 100 percent refund; without that last 10 percent, the story never snaps into place and is a useless communication.

In other words, stories are complete patterns that communicate a special kind of knowledge to our pattern-recognizing mental modules. How does that happen? I'll use a visual metaphor that clearly shows what happens (well, it's clear to visual thinkers...). Imagine your knowledge to consist of a meshwork of connected ideas, something like the diagram in **Figure 1.2**.

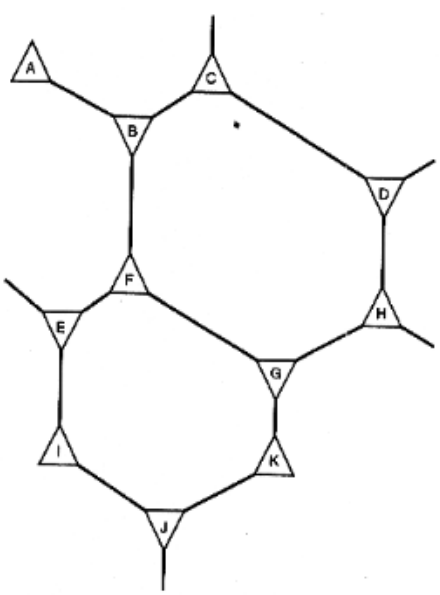

FIGURE 1.2: Abstract representation of information organized in the mind.

The triangles represent ideas or concepts inside your mind. All your ideas and memories exist in some association with other ideas and memories; in other words, you have associative memories. Now Figure 1.2 is misleading in two ways: First, it's a conceptual diagram, not a blueprint. It sketches out some imaginary set of relationships, not a real structure inside your brain. Second, it's vastly oversimplified. Mental associations are far bigger, richer, and denser than this little diagram. I present it only to prepare you for a little exercise in visual reasoning.

I can improve on this diagram by taking into account two facts: first, that some ideas hook up to more than three other ideas, and second, that often the connections between different ideas are strained (see **Figure 1.3**).

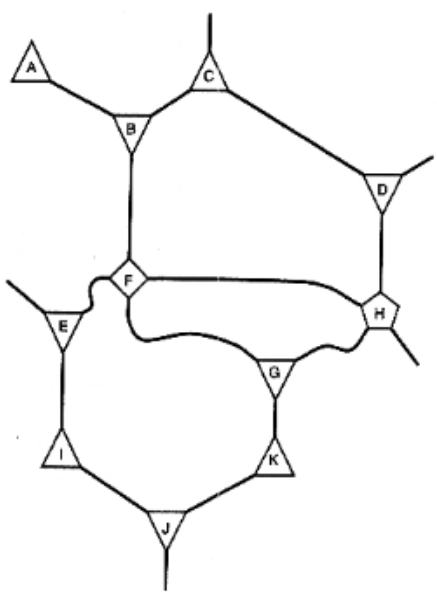

FIGURE 1.3: A messier, more realistic mental organization.

Now consider how learning is represented in this diagram. Sometimes learning is just a matter of adding new ideas, as represented in **Figure 1.4**.

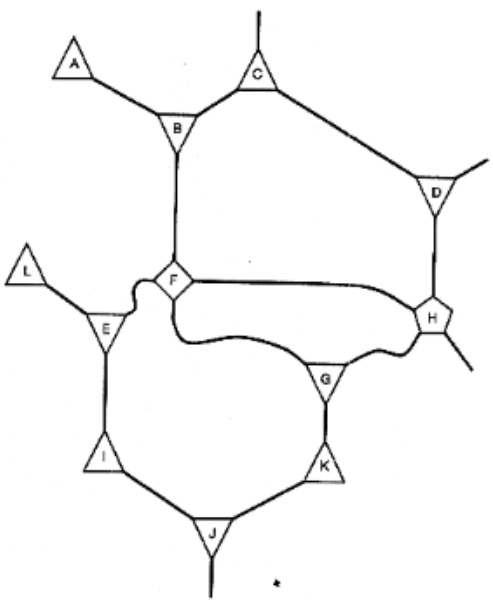

FIGURE 1.4: Simple learning without the "Aha!"

The new triangle on the left, marked as idea L, represents a new idea tacked onto an existing mesh. It doesn't change anything; it's just added on.

The "Aha!" experience comes when a new idea links existing ideas in a new and cleaner arrangement. For example, an exciting moment in learning physics comes with the realization that the sky is blue for exactly the same reason the sunset is red. That realization starts with adding a new link in the mesh, but that addition triggers changes in the mesh to accomodate the new idea, resulting in a cleaner, more tightly woven web. **Figure 1.5** shows how this might happen.

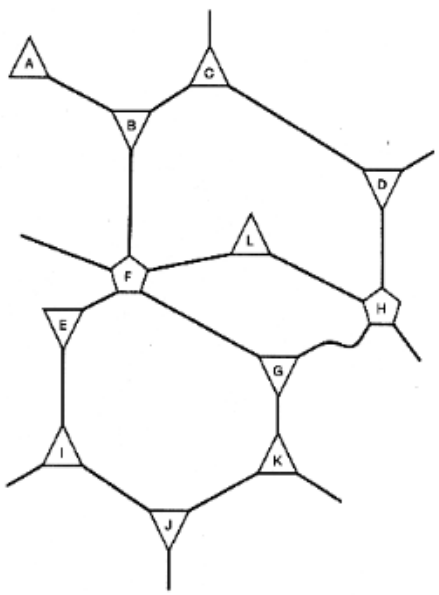

FIGURE 1.5: New idea L triggers "Aha!"

This sudden change of shape in the mesh is the source of the "Aha!" experience, often described as "everything clicking into place." Note also that idea F is now a five-sided hub; learning idea L enriched another idea already in the mesh. As we learn, triangles turn into diamonds, pentagons, and hexagons, and the connections in our mesh grow ever denser.

See Chapter 2, "Interactivity," for more on the "Aha!" experience.

Storytelling's value arises in an attempt to convey a complex mesh containing many linkages. Stories are never told to communicate single, disconnected ideas; you'll never hear a story ending with "And that's why pi is equal to 3.14."

Suppose you want to communicate a set of ideas represented by the mesh in **Figure 1.6**.

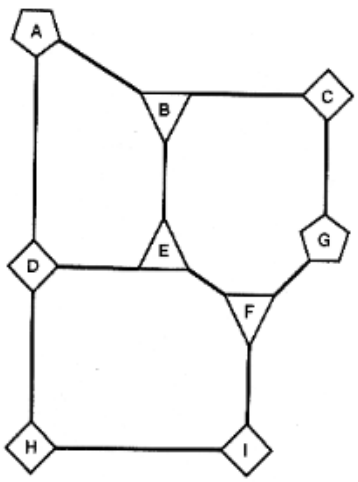

FIGURE 1.6: A wise mesh of ideas.

Suppose further that the person to whom you want to communicate this set of ideas already has a mesh, but her version of the mesh is incomplete (it lacks ideas E and F) and messy (see **Figure 1.7**).

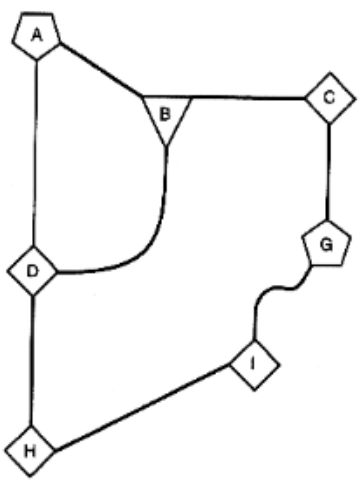

FIGURE 1.7: A student's mesh of ideas.

If you attempt to teach this new mesh in conventional fashion, you must first introduce idea E, forcing the student to make a mess of her mesh (see **Figure 1.8**).

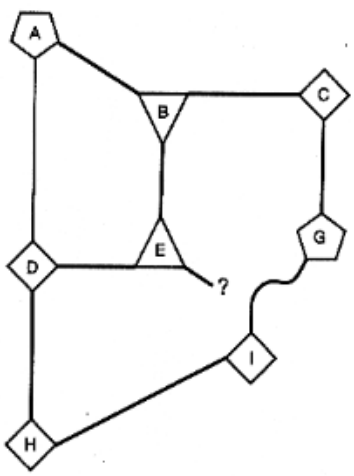

FIGURE 1.8: Student's confused mesh after the first lesson.

The student can clearly see that your ideas make no sense and resists including idea E. Now you must add idea F, but there's still a mess; idea F clashes with idea I, as shown in **Figure 1.9.**

You must explain how idea I is moved and the connections between F, G, H, and I are rearranged. Only then does the student grasp the new mesh. No wonder people have so much trouble learning complexly interconnected ideas—the intermediate steps are discombobulating craziness!

This educational process is made even clumsier by everybody having a slightly different mesh. The adjustments you advise to one student won't work with another; in fact, they could make things worse for the second student!

Stories solve this problem. Remember, a story isn't an isolated fact; it's a connected system of facts. Stories are presented in linear form, but they are understood as a mesh of interrelated ideas, which is why they must be experienced in their entirety to make any sense. If you express Figure 1.6 as a story rather than,

say, a lecture or a textbook, the student perceives it as a complete mesh and lays that mesh over her own (see **Figure 1.10**).

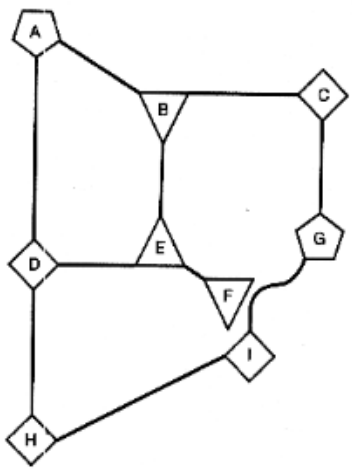

FIGURE 1.9: Student's confused mesh after the second lesson.

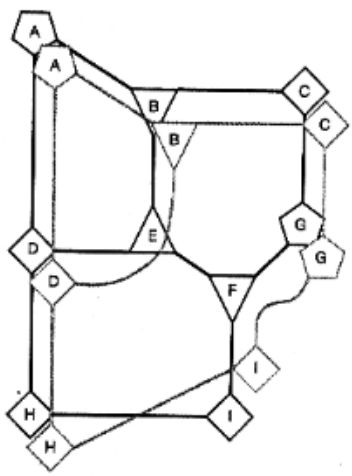

FIGURE 1.10: The student overlays the meshes to see the truth in relation to her own mesh.

Because brains are so good at pattern recognition, the student instantly recognizes the changes required to fix the discrepancy. Moreover, the story is more convincing than the expository teaching because the new mesh is obviously cleaner and neater than the student's original mesh. People love to learn, but when it's crammed down their throats in a process that's nonsensical most of the way, they resist. When it's presented to them this cleanly, they embrace it.

That's why storytelling was invented thousands of years ago and why it remains the most powerful medium for communicating complexly interrelated ideas.

The Nature of Stories

So much has been written about the nature of stories that it seems cheeky for me to throw in my own two cents' worth. Nevertheless, there are a few fundamental points I want to emphasize, if only to get you oriented toward the thinking that underlies this book.

Strong Structure

Stories must satisfy tight structural requirements to be acceptable. Many of the definitions I have seen strike me as too academically broad. Yes, any sequence of statements can be construed to be a story, but only in the most academic of senses. I can't specify the structure of stories, but I can point out that even a four-year-old child has a solid grasp of the concept of story. Here are two examples to run by your neighborhood four-year-old:

> *The itsy-bitsy spider crawled up the water spout.*
> *Down came the rain, and washed the spider out.*
> *Out came the sun, and dried up all the rain.*
> *And the itsy-bitsy spider crawled up the spout again.*

Here you have a clear, simple story in four lines. It has a protagonist (spider), conflict (the rain), struggle (being washed out), resolution (crawled back up), and even a moral (the value of perseverence).

Here's another story:

> *Once upon a time, there was a handsome young prince who lived in a shining castle. One day he mounted his beautiful white steed and rode out of the castle into the forest. Inside the forest, his horse fell into a hole and they both died.*

This story has most of the elements of many stories: the classic "Once upon a time" opening, a handsome prince, a beautiful white horse, a castle, and a forest. In these elements, it's quite conventional, but the ending is not at all what's expected. Tell this story to four-year-olds and they'll cry out, "That's not a story!" They'd be right. Whatever structural elements this pseudo-story has, it can't be called a proper story because it violates some fundamental expectations about stories.

Lesson #1

Stories are complex structures that must meet many hard-to-specify requirements.

Games have never paid much attention to the many structural requirements imposed on stories. The story of the prince riding through the forest could easily be an account of a player's experience in a game. Players don't complain when games jerk them through wild dramatic gyrations because they don't expect games to follow the protocols of storytelling.

People

Stories are about people. This is such a simple, basic truth that it's often lost in the high-falutin' analysis of narrative theory. Sometimes the references to people is indirect or symbolic, as in the case of the itsy-bitsy spider, who isn't a person but is understood by the audience to represent a person. An extreme example of this indirection is offered by the movie *Koyaanisqatsi*, which lacks a protagonist or dialogue. The people in this movie are all of us, and we are revealed by our works. The movie presents an artful sequence of images of nature contrasted with the world of civilization. Yet the story is strong and clear, and beautifully summarized in the final long, long shot of a rocket ascending higher and higher into the atmosphere and exploding. The camera centers on the largest fragment and follows it down, down, down. The symbolism is intense and powerful; this movie is about what we have become.

Concomitant with exalting the role of *people* in stories is minimizing the role of *things* in stories. You must concentrate your attention on the people in stories and simultaneously reject any significant role for things.

But aren't there plenty of stories that revolve around things? What about The Maltese Falcon, *Raiders of the Lost* Ark, *and Lord of the* Rings?

No, the objects in the cited stories do not play central roles. *Lord of the Rings*, for example, is not about the ring, but about Frodo's struggle. Replacing the ring with a magic sock or a hat or eyeglasses would not have changed the story much. Replacing Frodo with, say, Han Solo, Don Quixote, or Huck Finn would have changed the story beyond recognition.

This simple truth—that stories about about people, not things—explains the utter failure of games to incorporate storytelling in any but the most mechanical and forced manner. Games concern themselves with things: things you acquire, things you use, things you destroy, and so on. That's why they're so emotionally crippled—when was the last time you gave a damn about a *thing*? Games aren't antisocial; they're a-social. They just don't bother with people other than as walking dolls that perform mechanical functions. The cardboard people in games do for drama what inflatable dolls do for sex.

Lesson #2

Stories are about the most fascinating thing in the universe: people.

Conflict

All stories have some sort of conflict. Sometimes the conflict is direct and violent, as in *Star Wars* or *Lord of the Rings*. The good guys wear white hats and the bad guys wear black hats. The good guys are handsome and noble, and the bad guys are missing some teeth and have bad breath. Youngsters with their simplistic view of the universe favor such stories. But there are also stories in which the conflict is more indirect. Sometimes the conflict is social, sometimes it's symbolic, but there's always conflict of some sort. The second *Jurassic Park* movie illustrates the indirection of conflict. The primary conflict is between the mathematician and the soulless businessman; the conflict is established starkly early in the movie when the mathematician tugs at the businessman's sleeve and the businessman warns "Careful. This suit cost more than your education." As the story progresses, dinosaurs rampage with toothy glee, chomping and stomping people in horrifically entertaining ways, but they aren't the antagonists. Indeed, the dinosaurs are presented as something like "noble savages," devoid of evil intent, merely acting out their reptilian instincts with dinosaur integrity. The central conflict of the movie is indirect: The businessman gives orders to his minions, and the mathematician opposes him with vain pleas and dark warnings. Spielberg could have moved all the dinosaurs offstage, saving millions of dollars, without compromising the integrity of the story—although it wouldn't have been nearly as much fun.

Well, conflict at least is one place where games shine.

Not exactly. It's true that games have lots of conflict, but it usually takes the simplest and most direct form: violence. Games are deficient in other forms of conflict, such as social conflict. The game designer's spice shelf has lots of sugar and nothing else.

Puzzles

Stories are not puzzles. It's true that puzzles often form a part of the story; indeed, puzzles play a large role in mystery stories. The puzzles in a mystery story are primarily about people, however. The bulk of the story is devoted to detailing the sleuth's machinations in getting people to reveal crucial clues to the mystery.

But there's also plenty of nonsocial sleuthing going on. Take the television series CSI, for example. It's about using science to solve crimes, and it has been a big hit.

True, but the science is not what gives the stories their power. The gee-whiz technology is certainly spectacular, but the strong characters and often poignant storylines are the true strengths of the stories. Without those strong character interactions, *CSI* would be a run-of-the-mill whodunit.

A story always contains some kind of problem or challenge: How is the protagonist to resolve the conflict of the story? If this problem is an intellectual one requiring logical solution, it's called a puzzle, but the exercise of intellectual legerdemain is seldom central to stories. Plenty of great stories do quite well without any puzzle component.

Lesson #3

Puzzles are not a necessary component of stories.

Choices

Ultimately, stories concern the choices that characters make. Indeed, the entire point of many stories is revealed through a key choice the protagonist makes. In *Star Wars*, it's "Trust the force, Luke." In *Macbeth*, it's the decision to murder for ambition. In the third *Matrix* movie, it's Neo's decision to sacrifice himself. In many versions of the Arthurian legends, it's Guinevere's decision to act on her love for Lancelot. In each of these examples, the entire story builds up to or revolves around a key decision.

Spectacle

One of the most direct forms of entertainment is providing novel experiences. Sometimes you try out an exotic food merely for the simple pleasure of tasting something you've never tasted before. A great deal of music, especially popular music, relies on including odd new sounds. Rock music especially reveled in unconventional sounds: The electric guitar, feedback effects, the fuzzbox, and other innovative acoustic effects played a large role in rock music.

The visual form of this "pleasure from novelty" is spectacle: providing exotic imagery as a form of entertainment. Spectacle dominates the movies. The very first movies were spectacles without stories—trains crashing and so forth. *Star Wars* in 1977, *Jurassic Park* in 1991, and *The Matrix* in 1999 exemplify the appeal of spectacle. There's every reason to believe that spectacle will continue to dominate the movies.

Computer games have followed a related course. The earliest computer games offered nothing more than moving squares on a television screen; the evolution of computer games has been dominated by the quest for ever more realistic graphics to provide ever better spectacle. The progress made in the past 25 years is truly astounding. Expect even greater things in the future.

All this fabulous spectacle has engendered in the minds of most younger people an unfortunate confusion between story and spectacle. Many associate spectacle with story so strongly that they believe spectacle is a necessary component of story. But Aristotle, in his classic *Poetics*, ranked spectacle as the least important of the six elements of story. (His priority list was plot, character, thought, diction, song, and spectacle.)

A sad experience of mine forcefully demonstrates the degree to which spectacle has crowded out story in the minds of many. Once upon a time, I acquired a copy of Charlie Chaplin's classic *The Gold Rush*. After watching it, I enthused about the beauty of the story to a young friend, urging him to come watch it with me. With some reluctance, my friend consented. Barely a quarter of the way into the movie, he stood up to leave the room. Chaplin's great work bored him. The scenes were all "plain," the story's pace was torpid, and the movie had literally no color nor sound. How could I expect him to endure such a boring film? In my friend's opinion, a movie without spectacle simply wasn't worth watching.

Lesson #4
Spectacle does not make stories.

The Tyranny of the Visual

Many observers have noted that our culture is increasingly dominated by the image. Indeed, a recent book was titled *The Rise of the Image the Fall of the Word*[1]. No doubt, the image plays a larger role in our culture now than at any time in the past. In many ways, this is good. Glorifying war, for example, is much harder when the news gushes with images of the horrible reality of war. This even applies in fictional representations. Old war movies showed victims clutching their chests and sanitarily falling face down, but a movie like *Saving Private Ryan* shows heads being blown off bodies and people being ripped apart with such graphic realism that a friend of mine, after watching the movie, declared that he could not see how anybody could ever again support a war.

Tremendous effort has gone into improving the quality of images. Computer graphics has absorbed billions of dollars of research and development money and consumed the energies of thousands of our brightest minds. Hundreds of people labor over the computer graphics in a major movie, and their efforts are usually rewarded with bounteous ticket sales. Television is looking forward to the rise of HDTV and the accompanying huge improvement in image quality. Electronic networks are increasing their capacity dramatically, primarily to transmit images. The text you type amounts to a few kilobytes, while images gobble up megabytes.

I won't condemn the rise of the image in our culture, and I will not bemoan the decline of the word. What I want to concentrate on here is the way in which visual thinking has come to dominate our thinking, to the exclusion of everything else.

When I gaze upon a scene, I imagine that I'm perceiving a tiny fragment of reality—perceiving reality through the narrow window of the visual. I look at a tree and perceive so much more than the visual image. I imagine the fluids slowly creeping through its cambium, the photosynthesis taking place in its leaves, the absorption of nutrients from the soil—all these invisible processes that are central to the life of a tree. My eyes tell me only so much about the tree; there's much more going on out of my view.

Note that my perception of the tree is informed, indeed driven, by my education. Because I have read about biology and trees and physics, I bring to bear an understanding that allows me to see deeper inside the tree. My perception of the universe is an integration of my knowledge and my senses.

Here's an analogy: Suppose that you are watching a black-and-white movie. You see an apple presented in shades of gray, but you know that the apple must be red. Your real eyes see a gray apple, but your mind's eye fills in the color. Now extend that analogy. What if you also perceived the smooth texture of the apple skin, the slow oxidation of the apple's flesh—everything going on in that apple. By living only in the world of the visual, are you "seeing" less of the world than you could?

The Wachowski brothers created a stunning visual analogy to this process in the first *Matrix* movie. At the climax, Neo has returned from the dead and can now see the Matrix for what it is. He looks down the corridor at the three agents and sees not the corridor, but the code behind it. This image communicates the idea of seeing the processes behind reality rather than just the visual skin of reality. Ironic, isn't it: a visual representation of an idea that attempts to get around visual thinking?

Lesson #5
Visual thinking should not dominate storytelling.

Spatial Thinking

Closely related to visual thinking is spatial thinking. Spatial reasoning is one of the brain's greatest achievements. When you reach around behind the refrigerator to retrieve the fallen spoon, you're using spatial reasoning. People often apply spatial reasoning to nonspatial problems, as evidenced by such statements as "Jo and I aren't very *close* friends" or "Your statement is *wide of the mark*." Spatial reasoning used metaphorically, as in these examples, works well. The problem comes when people apply it too literally to storytelling. Spatial reasoning is out of place in the universe of drama because drama is about people, not things.

In my designs for interactive storytelling, I have always used a simple arrangement: Space is composed of individual stages with no spatial relationships

whatever between stages. In my definition, a *stage* is simply a location containing actors and props. Actors simply disappear from one stage and reappear on another. Inside a stage, all actors are able to interact with each other without any spatial considerations. It's a simple, robust model and it closely approximates the way in which space operates in most stories. This broader definition of "stage" can be applied in any storytelling medium: theater, cinema, literature, or interactive storytelling.

Most people react to my claim that stories don't rely on spatial considerations with incredulity, but consider the interactions between actors on a stage. How many times do the spatial relationships affect those interactions? Don't think in terms of movies because their visual element automatically includes spatial factors, thereby biasing the analysis. Consider a medium in which spatial factors are not automatically included: literature.

For example, the *Odyssey* is at heart a story of a journey around the Mediterranean. Isn't that fundamentally spatial? Indeed, the journey motif shows up repeatedly in literature, from the *Odyssey* to *Huckleberry Finn* to *Star Wars*. But are the spatial motions central to the story? Are they not merely transitions from one stage to another, without any genuine spatial content? The best evidence for the chimerical nature of spatial factors in stories is the fact that the actual spatial relationships are never specified. Odysseus traveled for many days and came to the Land of the Lotus Eaters—where is that? How far away is it from Scylla and Charybdis? Is it closer to Troy or to Ithaca? These relationships aren't specified in the *Odyssey*—because they're not important.

The same thing goes for other journey stories. *Huckleberry Finn* takes place on a specified river, with specified places that could, I suppose, be established on a map. Yet many of the details just aren't there. Where was it that Huck saw the body of his father? And how far away was that from the town where they tarred and feathered Huck's shyster buddies? Or the place where the feud led to the murders of his hosts? The reader doesn't know because those spatial relationships are irrelevant to the dramatic matters addressed in the story.

Even within a stage, spatial relationships are unimportant. Some people have contested this claim, observing that Cary Grant has to get really close to the actress if he's going to kiss her. But in literature, authors never write "Overpowered with passion, he walked over to her, seized her in his arms, and

kissed her frantically." No, the sentence is more like "Overpowered with passio he seized her in his arms and kissed her frantically." Look at it from the other extreme: "Overpowered with passion, he walked over to her, seized her in his arms, moved his head directly in front of hers, rotated his head slightly to avoi a collision of noses, then closed the gap between her lips and his and kissed he frantically." Pretty silly, eh? Spatial factors just aren't important in drama. If ar actor needs to alter a spatial relationship to get something done, he simply do it, and you don't need to worry about the mechanical details of how that's car ried out. Stories are about the exercise of emotion, not musculature.

Consider the *Star Trek* universe, developed over the course of more than three decades by hundreds of people. Fat encyclopedias define and list all manner of details of the *Star Trek* universe. You can read technical specifications for all kinds of starships and wondrous devices. There are detailed histories of dozen of different species and their homeworlds. Yet this stupefying mountain of dat lacks one of the simplest of all documents: a map. Nobody can tell you wheth the planet Vulcan is closer to the Klingon homeworld or to Earth. Where is th planet Andorrea? How do you get to Raisa or Cardassia? There are literally hu dreds of stories from the *Star Trek* universe, but a map has never been necessa to understand the stories.

Lesson #6
Stories take place on stages, not maps.

Temporal Discontinuity

Just as stories break up space into discrete chunks called stages, they play havo with time—breaking it up, jumping backward and forward, and skipping it altogether. Actors are shown embarking on a journey and arriving at their destination; the time the journey itself consumes is simply skipped over. Years are disposed of with the note "Many years later...." Simultaneity is presented sequentially with the simple phrase "Meanwhile, back at the ranch...." Flashba jerk you backward in time, and then return you to the present without so mu as a by-your-leave. Dramatic time just doesn't behave like physical time; it fol lows whatever course the story requires.

Fortunately, temporal reasoning facilities aren't as unconsciously pervasive as spatial reasoning facilities, so people seldom have difficulty appreciating the liberties storytellers take with time. Nevertheless, computer game designers contemplating the problems of interactive storytelling should disencumber themselves of the old notions of physical time that so dominate games.

Wrapping Up

This chapter reveals no grand theory of narrative. Instead, it offers a number of separate points about story that are important in considerations of interactive storytelling. Storytelling is so deeply entwined in human nature and cultures that I doubt whether the true essence of stories can ever be nailed down. If you mean to build interactive storytelling systems, however, these few points at least should be clear in your mind before turning to the matter of interactivity.

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1. Mitchell Stephens, *The Rise of the Image the Fall of the Word* (Oxford University Press, 1998; ISBN 0195098293).