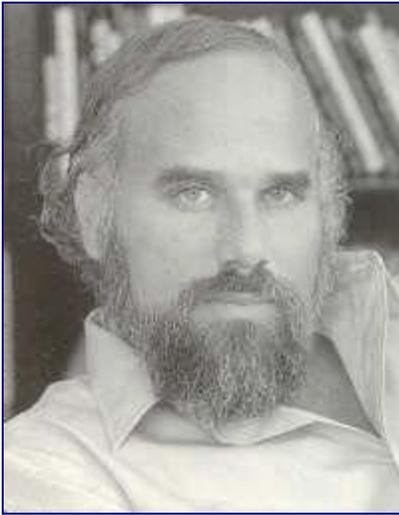


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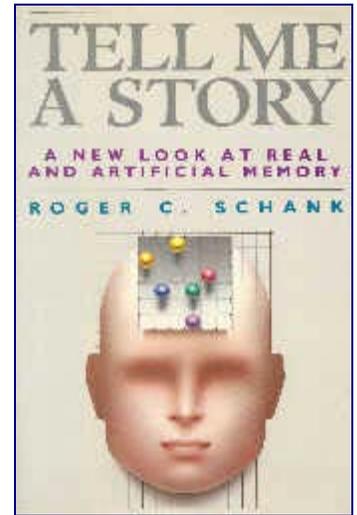
**Tell Me A Story  
A New Look at Real and Artificial Memory**

by

**Roger C. Schank**

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A Book Review by Bobby Matherne ©2006



*It is only when facts are converted into stores that they  
become real to us.*

— Professor Arnold Weinstein in a lecture.

The theme of Roger Schank's book is that telling stories is an essential part of the process of remembering. The importance of telling stories to memory first came to my attention via this book, and it prepared me for understanding Doyle Henderson's claim that if one remembers events before the age of five, it is likely due to having been told a story about the event after it happened. Listening to an event being recounted reinforces the tentative memory trace laid down by the event itself in cognitive memory. This is especially true in 3-, 4- and 5-year-old children who have a newly functional neocortex. The brain doubles in mass from birth to three years old, and most of this additional brain mass is due to additional neocortex. In the evolution of humankind, this doubling of the neocortex happened between the time of Cro-Magnon Man and our time. By five years old today, the human neocortex is fully functional providing cognitive memory, which is what we refer to simply by memory. Doyle explained to me that if one wished their young children to remember any event or a person's name and face (such as an elderly aunt or uncle), one should talk to the child the next day about the event or the person. What Doyle said reminded me of this book by Roger Schank that I had read about six years or so earlier.

Schank's point is that the very process of telling a story creates the memory trace, or at the very least reinforces it and makes it permanent. He says on page 147, "The stories we tell each other, we also tell ourselves." In the process Doyle talks about, the adult tells the story to help the child lay down a memory track. In the process Schank talks about, one hears the story during one's own telling of it to reinforce the event in memory. The mere telling that one does may be enough to distinguish an event we remember vividly from one about which we quickly forget all or most of the details.

This should be enough to disabuse anyone of the notion that telling a story is merely an output process, such as one taking money out of safe deposit box. Telling a story is as much a creative process as taking money from a safe deposit box to invest it wisely in a growing enterprise, for that is what a human being is, a growing enterprise. When someone tells a story they create a stronger and better memory than was present before the telling. Like the money in a safe deposit box, events which are not told to others stagnate and lose their value over time.

Think how every time you tell a favorite story, you vary the details of the story. The story varies according to whom you are telling it to, how much time you have available, what events in the here now led you to tell the story, and a myriad of other factors. This creativity with each telling reinforces the memory trace of the event. Rather than a simply output process telling a story is a recursive process — a combination of input and output going on at the same time. If your net worth is in a safe deposit box, when you remove it to invest it wisely, your net worth increases.

In a similar vein, Rudolf Steiner , in a book of his lectures, [Guardian Angels](#), tells us that thoughts live inside us and

only come out of us when we convert them into language in the process of telling them to someone else.

**[page 31] Initially a thought lives within us, and although it is by means of this thought that we relate to the external world, and the secrets of the outer world are disclosed to us through thoughts — the thought initially lives within our inner being. Yet it can be given expression. It comes to expression when we tell it to someone else. Language is an element in human life by means of which we bring our thoughts to external manifestation.**

We often bring our thoughts into external manifestation in the form of a story. The best stories are those which illustrate a point which requires the hearer to ponder the story to discover it. We are so enured to receiving unsolicited advice that our ears tend to *glaze over* when it starts. But a story, such as this next one, does not need an explanation because it illustrates the trouble with giving an explanation of the point of the story.

**A Sufi master and his disciple were sitting at a table one afternoon, and the disciple was hungry and noticed a single, juicy-ripe peach in a bowl on the table near his master. "Master," he asked politely, "would you hand me that peach?" The master reached over, picked up the peach, and proceeded to eat all of the delicious-looking flesh, and when he was done, reached over and handed the peach pit to his disciple.**

Ponder the meaning of the story. It is a famous one and typical of Sufi stories which make their point with a touch of paradox and unexpected quirks. Why would one bother to tell anyone such a story? Or, why did the Sufi master act the way he did to his disciple? Schank gives us a clue.

**[page 11, 12] Stories illustrate points better than simply stating the points themselves because, if the story is good enough, you usually don't have to state your point at all; the hearer thinks about what you have said and figures out the point independently. The more work the hearer does the more he or she will get out of your story.**

Why did the Sufi eat the flesh from the peach before handing the pit to his disciple? The disciple had been pestering his master to explain his stories, and no amount of telling the disciple to figure it out himself seemed to be working. The Sufi wanted to make the point that Schank does above: when one does the work of figuring out the point of the story for oneself, one receives the greatest nourishment from the story. To offer someone a good story and then provide them an explanation of the point of the story would be as inappropriate as offering someone a peach after one had removed all the flesh from it. The nourishment the full peach offered, like that of an unexplained story, would be lost forever.

Did you strive to figure out the story before you read my explanation? This will give you some insight into whether you depend upon receiving others' maps (peach pits) for the meaning of puzzles in life or whether you work out the puzzles on your own (eat the peach flesh) so as to receive the fullest possible nourishment from them.

**[page 15, *italics added*] The understanding problem is simply that humans are not really set up to understand logic. People tell stories because they know that others like to hear stories. The reason that people like to hear stories, however, is not transparent to them. People need a context to help them relate what they have heard to what they already know. We understand events in terms of events we have already understood. When a decision-making heuristic, *rule of thumb*, is presented to us without a context, we cannot decide the validity of the rule we have heard, nor do we know where to store this rule in our memories. Thus, what we are presented is both difficult to evaluate and difficult to remember, making it virtually useless. People who fail to couch what they have to say in memorable stories will have their rules fall on deaf ears despite their best intentions and despite the best intentions of their listeners. A good teacher is not one who explains things correctly but one who couches explanations in a memorable (i.e., an interesting) format.**

For example, if someone wished to explain what a rule of thumb is, they might tell the story about how the term originated. In the Middle Ages, it was considered acceptable at the time for a man to beat his wife with a stick, but

only if the stick was not bigger around than his thumb. This is an example of a story which is memorable and, even if you find the events described in the story disgusting, you will remember how the term rule of thumb originated(1).

Here's a favorite story of mine. Gregory Bateson, a famous cybernetics expert, was asked a question by a student in a class dealing with artificial intelligence. "Dr. Bateson, when will we know that computers have reached the intelligence level of human beings?" Bateson replied, "We will ask the computer a question and it will answer back, 'That reminds me of a story.'" Let's take a look at how Schank analyzes the situation of story-telling and the inverse process of learning by listening to stories.

**[page 58] In the world of computers, we have an analog in machines that do their thing irrespective of the wishes of the user because the user either doesn't know how to communicate instructions to the machine or else doesn't know how to stop the machine once it has begun to do its thing. The crazy person or the user-hostile computer has a story to tell, and it may not really care about whether you want to hear that story. For them, understanding means no more than unrestrained storytelling.**

**A less shallow form of understanding takes place when listeners with many stories to tell pay enough attention to what you have said in order to relate the story in their repertoire that is most closely connected to what they have heard. But, in a sense, this still seemingly shallow understanding may be all we can really expect most of the time. Now, this view may seem rather radical. After all, we do see and hear new things every day. To say that we never have to understand any story that is brand-new may be overstating the case. And, of course, we do get presented with new stories. My point is that we don't really understand them.**

**Well, more accurately, we don't understand them as new stories. They may be new enough, but we nevertheless persist in seeing them as old stories.**

What Schank is talking about here never really set into people's minds until Thomas Kuhn came along in 1962 with his classic book, [The Structure of Scientific Revolutions](#). Until Kuhn, one might have naturally considered that scientists were immune to seeing new stories as old stories. After all, they were thought to be "smarter than the average bear", were they not? Kuhn blasted that illusion into smithereens with his concept of paradigms. Paradigm was a quaint, little-used word meaning "model" and not much else when Kuhn pressed it into service to describe how even scientists, in fact, the most esteemed and respected scientists of our time, were especially apt to hear new stories in terms of old stories.

Suddenly the reason for the shabby treatment of innovators in the history of science became clear. It explained such things as: 1) Why Newton was ignored until Halley stepped forth to predict his eponymous comet's reappearance. 2) Why Giordano Bruno was burnt at the stake 400 plus years ago. 3) Why Gregor Mendel's founding work in genetics was left languishing in a journal for 25 years, until found by T. H. Huxley, who recognized its import(2). 4) Why Immanuel Velikovsky's predictions of radio emissions from Jupiter were laughed at in 1952 when his "Worlds in Collision" made this and 25 other predictions, all of which have subsequently been proved to be accurate. And what was the reason for the shabby treatment of innovators? The scientists listened to their theories, their new stories of how the universe worked, and *understood them in terms of old stories!*

Creating a new story is a bootstrap process, rightly understood. To bootstrap a computer is theoretically easy: you simply load the first program and it proceeds to load all the rest of the operating system and application programs. Simple, huh? It is if you apply some story of yours to understanding the phrase, "load the first program". But it turns out that it's not simple at all! In fact, it's impossible to load the first program in a computer! Why? Well, consider this: to load a program require a program to be in the computer to do the loading. So, how does one load the first program into a computer? See the logical knot, the paradox that we encounter in something so simple as "loading the first program"?

Obviously we've engineered ways to load the first program into a computer — in fact, it takes an *engineer* — a skilled hardware engineer at the factory to load the first program. But notice how asking a scientist to understand a completely novel theory about the universe requires them to understand a new story (theory) for which they have no

ready accessible old stories (theories) to help them understand! Understanding is stories all the way down. And you have to have a first story for every new theory exactly as you must have a new program loader pre-coded in the hardware of every new computer. Or else the scientist's response to the new theory will be as exciting as the display on the new computer: a BLANK STARE! Or worse: a debilitating attack such as Harlow Shapely, an esteemed Harvard astronomer made against Velikovsky. He threatened Macmillan Publishers with pulling out all of Harvard's textbook orders from them if they persisted and published Velikovsky's "Worlds in Collision." The book went on to be published by Dell Books and became a runaway best-seller. Velikovsky's work as a respectable scientist still suffers from the old stories that Harlow Shapley used to understand Velikovsky's new stories. Those old stories could not explain the dramatic events of Exodus as well as Velikovsky's new stories and Shapley had to reject them out of hand based on reviews of Velikovsky's books by others.

Schank tells us in some detail how people understand a new story.

**[page 59] . . . the understanding process involves extracting elements from the input story that are precisely those elements used to label old stories in memory. In other words, understanding is really the process of index extraction. Further, index extraction is an idiosyncratic process that depends upon what stories you have stored away and what indices you have used to label those stories. In some sense, then, no two people can really understand a story in the same way. You can't understand a story that you haven't previously understood because understanding means finding (and telling) a story that you have previously understood. Finding some familiar element causes us to activate the story that is labeled by that familiar element, and we understand the new story as if it were an exemplar of that old element. In this way, we find things to say to those who talk to us. These things differ considerably from person to person, thus accounting for the very different ways in which two people can understand the same story.**

One must clearly distinguish between data and information. Information is best defined as the receipt of data that you are unable to predict in advance. If there is any uncertainty at all, your prediction is simply a prediction and *not* information. It's the difference between a tout's data on how a horse race will come out, and the results on the Tote Board. Prediction versus information. If one is able to seed a prediction with actual information, they will have an edge on everyone else that will be valuable. In the movie, [The Sting](#), Newman and Redford immorally profit from a race track scam based on that principle. Julius Reuters found a way to accomplish that process morally. He signed up subscribers to his service which became a trusted company known as the Reuters News Service, and no one dares pronounce the name as "Rooters" as they did before it became the first telegraphic news service of the world. As Schank says on page 60, "In other words, understanding, rightly or wrongly, usually means being able to add information to memory."

Anomalies are those things which, like Kuhn taught us to see, do *not* fit in with our current stories, our *paradigm*. But we do not look for anomalies for that very reason. When Darwin's ship the Beagle was anchored offshore of the South American coast, his men asked some natives what they thought of their large ship. The natives responded, "What large ship? All we see is a seabird floating on the water." The natives had no stories corresponding to a boat any larger than a canoe, so that thing they saw in the distance must have been a seabird.

We humans have associative memory and thus we store new things along with things we already know about in our memory. The natives stored the large ship along with other seabirds they had stored in their memory.

There are some people who code their information into stories which their hearers will not easily be able to understand. Crazy people do it out of their awareness. Psychotherapists do it in their awareness. They strive to confuse people to prevent them from storing what they are saying into the soon-forgotten dustbin of their usual memory. To accomplish this, they must create some confusion which will cause their clients to stop their usual processing — to *not* find their own story — and thereby open an avenue for learning something new — which is why they have come to therapy in the first place.

**[page 82] The point here is that once we have found our own story, we basically stop processing. The reason for stopping is partially based upon our intentions in the first place. Since most of**

**the time we were really just looking for something to say back in response, having found something, we have little reason to process further.**

Schank makes the emphatic point that "talking is remembering". Let me tell you that again, and perhaps you will tell someone else and thereby we will both have a chance of remembering that "talking is remembering." An event remains out there and in our memory as an amorphous blob with neither structure nor meaning until we dare to tell it to someone. Directly we begin talking the event takes a shape in our memory — we formulate a gist of the event.

**[page 115] As we tell a story, we are formulating the gist of the experience which we can recall whenever we create a story describing that experience.**

***We need to tell someone else a story that describes our experience because the process of creating the story also creates the memory structure that will contain the gist of the story for the rest of our lives. Talking is remembering. It seems odd, at first, that this should be true. Certainly, psychologists have known for years that rehearsal helps memory. But telling a story isn't rehearsal, it is creation. The act of creating is a memorable experience in itself.***

Few people understand how important the Eustachian tube is to our being able to speak and understand the words we hear other people speaking. In the book [The Sense Organs & Destiny](#), Rudolf Steiner explained the relationship between hearing and speaking. I came to understand why I must say the words aloud when learning new words in a foreign language before I can hear them. Hearing them is easy in a classroom situation — it is difficult in the outside world when they are spoken within a stream of speech by a native speaker of the language. He said on page 17, "When you hear the word Tree, you yourself with your etheric body — not with your physical but with your etheric body — speak the word Tree very quietly to yourself; and through the so-called Eustachian tube, which passes from the mouth into the ear, the word Tree sounds forth ethereally, going out to meet the word that comes to you from without; and the two meet, and thus you understand the word. Otherwise you would only hear it and it would be nothing in particular. You understand it by saying back through the Eustachian tube what comes towards you from outside. In that the vibrations from outside meet the vibrations from within, and interpenetrate, the inner man understands what comes to him from without." Imagine that a resonance, like a piano key being struck which sets a tuning fork vibrating, takes place when the sounds you hear with your ear travel down the Eustachian tube to cause an unconscious sub-vocalization and the two sounds then match each other like the piano key and the tuning fork. The feeling of resonance of the heard and spoken sounds leads you to know internally the thought, "I recognize that word."

Some people have noticed how the word "therapist" can be parsed into "the" and "rapist". A rapist is someone who forces another person to do something untoward. Basically one person forces another person to do something that the other would *not* do under any other circumstances. How might a therapist do such a heinous act in the course of a session? One way is to simply ask the question "What is your problem?" Schank elaborates.

**[page 139] In other words, memory works to preserve the way we first compose a story, i. e., to preserve our original viewpoint vis-à-vis the listener. To put this another way, if the first telling of a story reveals one's problems in dealing with a situation rather than showing oneself in the best possible light, we will remember the story that way.**

**Telling stories in a way that expresses our problems or our lack of ability to cope in the real world poses a serious hazard, then. Of course, therapists encourage exactly these kinds of stories. The questions, What is your problem? or What can I help you with? or even a much more neutral What did you want to talk about? all elicit a story that reflects poorly on one's ability to cope. So the very telling of stories whose emphasis is negative reinforces the kinds of problems that therapy is supposed to address by adding new, negative stories to one's repertoire of stories.**

The usual response by a therapist who has asked such questions of a newcomer to therapy will likely be, "We had better schedule you for two sessions a week(3)."

The theme of this book is stated rather clearly in this next passage.

**[page 146] Telling stories, and more important, creating stories to tell is an important part of the**

**learning process and hence of the process of memory organization. We tell stories in order to make a conscious check on how memory organization is going. It helps us to find out what we are currently thinking when we tell a new story, what we used to think when we tell an old one, and what we think of what we think when we hear what we ourselves have to say.**

How do we remember? We create the experience we wish to remember in our body and then the stored memories begin to flow into us as an all-at-once or holographic experience. We are then tasked with chopping up the holistic events into sentences in our native language. That chopping-up is what we call speaking and story-telling when the speaking is describing some holistic experience we underwent. If it's a familiar experience, we are able to rely on older stories — stories we have already told of similar events — to model our description of this event. If it's a new story, we encounter the bootstrap paradox in which we are unable to tell a story of an event because we have no similar stories stored away to model after. But we must proceed anyway, so we say things to get us started like, "A funny thing happened to me on the way here ..." and explain what the unusual event was. We utilize stock beginnings to stories such as "Once upon a time ..." to bridge the gap with the listener's understanding by ensuring that they have an previous story to call upon. Everyone has heard a story which began, "Once upon a time ..." so everyone will be ready for what follows next.

What follows next when one comes to the end of a story is that the world continues on for some indefinite time in some indefinite way. So I must close this story about "Telling Me A Story" by saying, "and they all lived happily ever after."

----- *Footnotes* -----

**Footnote 1.** This story about the origin of rule of thumb came to me via Tom Parker from his book of the same name, "Rules of Thumb" in 1984.

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**Footnote 2.** Such a long time had passed that Huxley felt no compunction about creating his own word for the new field of genetics instead of naming it in Gregor Mendel's honor.

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**Footnote 3.** In the movie, "Woman Under the Influence", one can watch this dynamic at work. This was first pointed out to me in a workshop by Richard Bandler, ca. 1978.

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