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Language Skills After a Stroke: A Case Study

In the right environment at the right time, a stroke victim can recover some language skills that were lost due to brain damage. Those regained language skills, however, may not match the same style or pattern that existed before the stroke. Some of these new language patterns reflect personality changes brought on by the same brain-damaging event. This paper explores the relationship between language and personality by focusing on one stroke victim.

The victim model is my husband. Before his stroke at age 61, Tom's reading interests included historical accounts about Nevada ghost towns, speculative stories about unidentified flying objects, and historic or technical books about transportation machines such as cars, airplanes, trains, and old engines. This letter showing his pre-stroke writing ability in *The Gas Engine Magazine* (popular with collectors of antique farm equipment) responds to a question in a prior volume:

> **Fuels, Valve Rings, Etc.**
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> Regarding unleaded fuel: First and foremost is the fact that leaded fuel didn't come into existence until the late 1930s. Most of our beloved old iron was born long before this, so they never had lead to run on when new.
>
> Charlie Kettering of GM started fooling around with high compression in the 1930s and found tetraethyl lead to be a good knock inhibitor. Its lubricating qualities were an extra benefit.

> My point is that your old iron will run just fine on today's fuels. We don't ask them to perform at their rated loads anyway. If a person wants to go to the expense, any good automotive machine shop can counter bore the exhaust seat and install a hard seat ring. Most replacement seats are a good grade of cast iron, but hard seats, even Stellite, are readily available…. (Tom Hartman)

I had brief glimpses of Tom's personality before his stroke. For several months in 1977, we were co-workers building video-poker slot machines at Bally Manufacturing. After that, we met for lunch once or twice a year until 1982 when I moved to California with my first husband. I believed Tom to be pleasant company for short visits. He loved to tell stories about his earliest work as a machinist in automobile racing circles and the aviation world. He had a sense of humor. He displayed a kind and caring attitude to me and wished aloud that we could visit more often. We were friends (my current marriage was shaky) but I did not consider him good next-husband material because I sensed a negative undertone in his overall outlook.

His son also described Tom's before-stroke attitude as negative. John says Tom felt resentment towards his ex-wife and all other women in general. He says that is why Tom remained a bachelor for the twenty years following divorce. John also reports that his father had a loud, profane and violent temper. In addition, he was full of anger about being "skipped over" for promotions at work. John believes that this self-induced stress coupled with hypertension caused the stroke (John Hartman).

On the day of the stroke (April 4, 1993) Tom telephoned his son John saying "I need help." It was 3 o'clock in the morning -- John and his mother (a nurse) were immediately alarmed. When they quizzed Tom about his problem, he could say only three phrases: "Something's

wrong," "I'm fuzzy," and "I can't think right." By the time they arrived at his house, they found Tom on the floor by his bed. He was unable to dress himself and incoherent.

In the Discharge Summary from Saint Mary's Regional Medical Center in Reno, Larry Noble, M.D. reports Tom's complaints: "difficulty with his speech, right arm and right leg weakness" (1). His symptoms were improving by the time he arrived at the emergency room. [John recalls that he could answer questions about what he ate, his name, the day and time correctly.] The hospital ran some tests and gave him aspirin and blood pressure control medicine. Tom slept afterwards, and upon wakening in the afternoon of the same day --- he could not speak at all. The discharge summary states that subsequent "angiography … demonstrated total occlusion [closing off] of the left internal carotid artery."

The stroke diagnosis is described another way in the discharge evaluation report from Continental Medical Systems Hospital (CMSH) where Tom was taken after leaving St. Mary's. In a speech pathology report, Tom Watterson, Ph.D., quotes this phrase from the CMSH: "left CVA with right hemispheric involvement" (para.1).

The Rehabilitation Hospital of Nevada-Reno explains those two statements by bringing them together in one definition: "A stroke or "cerebrovascular accident (CVA) occurs when there is a disruption in blood flow to a part of the brain. This is caused when the blood vessel (carotid artery)… becomes clogged or bursts. This causes a lack of oxygen to the area resulting in "infarction" or death of the cells" (3).

Watterson's speech pathology report described Tom's initial language-related symptoms by using quantified medical terms. With the help of a dictionary, I interpret those terms as follows:

Severity	Term	Definition
Moderate to Severe	Non-fluent, expressive dysphasia	Inability to speak (think of) words
Mild to Moderate	Receptive dysphasia	Inability to understand words
Moderate	Apraxia of speech	Inability to pronounce words

Family members add more detail to this general clinical description. His son John reported something not written by the doctors, but which they said was a common occurrence.

In the first one or two weeks after the stroke, while Tom was still in the hospital, John remembers that his father could only say "yes," "no," and "fuck." He would recite the f-word repeatedly, without emotion. It had no particular meaning; it was just an easy-to-say word (John Hartman). Daniel R. Boone, Ph.D. calls this symptom of aphasia "perseveration." He says patients are aware of their repetitions but are "at a loss to end them" (10). Other family members did not arrive on the scene until after that phase of language expression had passed.

Tom's sister Edith, and her husband Robert Zima, stayed with Tom for one month after he came home from the hospital. While they were here, Bob and Edith drove Tom to speech therapy classes five days a week. In addition to helping Tom practice new motor skills with his left hand, they coached him on the lesson material from therapy sessions. Bob recalls several observations about Tom's language skills in April/May of 1993. For instance, Tom could not say complete sentences. He understood most questions but would become confused if the question required a choice of answers.

Tom could draw numbers (with his finger, on a surface or in the air), but he could not recite their names on demand. He could not recall a sequence or count with numbers. He could not make change with money. He pronounced one number in speech but meant another. The

same was true for names of directions: while pointing to his right he would say “turn left.” (Zima)

These symptoms point to damage in certain areas of the brain. A diagram of brain organization printed in a Rehabilitation Hospital of Nevada-Reno handout shows that language comprehension is in the left frontal lobe known as Broca’s Area. Other parts of the frontal lobe affect personality, judgment, and problem solving. Language expression comes from the left temporal lobe called Wernicke’s Area (5).

Bob and Edith could only stay with Tom for one month. He started to resume life alone, but he had help. His meals were provided by the Meals on Wheels program. John stopped by to check up on him and take care of the mail several times a week. Tom continued to attend language therapy sessions through the summer, getting there by bus.

By June 28, 1993 (the date of the Speech Pathology Report), Watterson said Tom still had trouble with spontaneous speech. He would get frustrated but did not give up. At that time, he showed “tremendous motivation to improve” (par.4). Around that same time, Tom wanted to go back to his job assembling the coin handling parts of slot machines. His boss at P&M Coin allowed him to work as much or as little as he could manage, at his own pace.

These signs indicate an adjustment and a desire to get on with life after what must have been a traumatic experience. John was glad to see that his father no longer exhibited signs of intense anger or other negative attitude displays. However, John reports that by September, the rest of the picture was rather gloomy. When he wasn’t at work, Tom could be found sitting in a chair staring out the window. He sat there for hours without moving. He was not interested in watching television. He had no appetite, eating very little of his delivered meals. He stopped

going to speech therapy sessions. John describes this behavior as a "blue funk." Both John and his mother were very worried that Tom would not survive long at that level of inactivity.

I arrived on the scene about ten months after the stroke, in February 1994. I was in town to complete my "summer camp" training at the Nevada Air National Guard and called Tom to see how he was doing. (It had been more than two years since I last talked to him.) His son answered the telephone and they both insisted I should come to the house right away. I then learned about the stroke.

Our last brief face-to-face encounter had been in 1984, the year before I married my second husband. Now, ten years after that, I was in the middle of divorce proceedings. I was free to take a new look at Tom. I did not see the "blue funk" version of Tom that his son later described. Tom was very happy to see me. I explained to John that we had known each other since 1977 (John was only 4 years old then).

I continued to visit Tom every month when I came into town for Guard drills. By May, Tom was able to drive again and started to visit me in California on non-Guard weekends. Over the next 13 months I was continually amazed by Tom's new personality. Although his speech improved very slowly and still frustrated him at times, his overall attitude was happy and cheery. He was very much like a child in a good way: he had a child's sense of wonder, playfulness, and eagerness. I don't know if this was from lucky timing or something else, but his family decided that I was the reason for the transformation. We were married in May of 1995 and Tom moved to California to live with me in his early retirement.

Once settled in, Tom was willing to resume therapy for his language difficulties. This time, it came in the form of tutoring sponsored by the local stroke-support group. The tutor and I determined that Tom needed help in these areas: 1) naming numbers, 2) naming the letters of the

alphabet, 3) reading and reciting multi-syllable words, 4) telling time, and 5) naming days of the week, months of the year, etc. I also noticed that Tom had difficulty with pronouns; a listener had to do a lot of guessing to get the message. Most of all, Tom wanted to read whole paragraphs. He could read and enjoy the comics or any short sentence, but he lost the sense of anything longer. In addition to tutoring, Tom watched *Sesame Street* and worked with a learning game on my computer that was designed for children aged five to eight. He was willing and eager to master lost skills.

Tom made some progress in these tasks, but it went too slowly to please him. After about four months, he and the tutor agreed to stop. By then, I was reading articles that claimed no further improvements should be expected after the first 18 months following a stroke. We stopped worrying about progress and relaxed. I believe that was the key. Instead of formal therapy, Tom pursued "look and see" activities that interested him. He learned by doing, listening, and watching. Visiting old friends, watching television, reading the comics in the newspaper and what he could from favorite magazines --- all these normal activities slowly began to bear fruit. The list of what he couldn't do began to shrink.

There are some things he may never be able to do which relate indirectly to language skills. He still has trouble expressing abstract ideas that are not a part of his long-term memory. Like many of us "normal" folks, he has difficulty learning names of new acquaintances. He can't give or take telephone messages. He can't tell me what a doctor told him or any news from a lunch date with John. The only way he can read telephone numbers aloud is if I spell them out in word form, such as "eight five six four one one three." He knows what the symbols mean, but just can't pull all the words out on demand.

Despite those limitations, I believe he shows great improvement in other areas. He no longer calls me by his first wife's name. He can usually keep his pronouns straight. He can tell someone a time within thirty-minute intervals. He can say the year an old car was made instead of drawing it in the air. He knows what day, month and year we are in. He is getting more out of his magazines than just picture identification. Best of all because of the positive feedback he gets from friends and relatives, Tom talks in longer and more complete sentences. He successfully shares all his stories and memories from the 1960s and 1970s well enough for a listener to enjoy them. He is happy. I believe the stroke improved Tom's quality of life.

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