

# Interpreters:



Interpreters play an important role when world leaders meet at the United Nations.

## Silver-Tongued



Flags wave outside the United Nations in New York City.





# Masters of Memory

by Charles Capaldi

**T**ODAY, MURIELLE PÉRÉGOVOY sits in a glass-enclosed booth. An ultra-light headset rests on her ears. A microphone hovers in mid-air, inches from her mouth. Pérégovoy doesn't see any of it. Her attention is riveted on the space between her ears, which is currently filled with short bursts of angry Russian from a participant who has the floor on the other side of the conference room. Her voice rises and falls to match that of the speaker, filling the booth and the headsets of everyone tuned to the French channel. The participant finishes speaking and sits down. Murielle finishes one sentence behind him and reaches out to turn off her microphone. On any given day, she could be the voice of an ambassador, a distraught mother in war-torn Iraq, or an orthopedic surgeon. Pérégovoy is a simultaneous interpreter, and her workday has just ended.

In addition to knowing their native languages, professional interpreters are expected to understand two or more languages as well as any educated native speaker. More than 50 percent of the world's population is bilingual (speaks a second language from early infancy), and many bilingual people are drawn to the field.

By the age of two, most children have a vocabulary of about 2,000 words. The average American high school graduate has a vocabulary of about 50,000 words. A bilingual high school graduate can possess a vocabulary twice that size, split across two languages. Imagine the vast vocabulary stored in the long-term memory of an interpreter. Interpreters, then, seem to have amazing memories. But do they really? Questions like this one keep neuroscientists up late at night.

One of these neuroscientists is Dr. Michel Paradis, who teaches at McGill University in Montreal, Canada, and researches aphasia in bilingual people. Aphasia (the inability to understand or use language) usually results from a traumatic brain injury such as a stroke or accident. In the course of his research, Paradis has learned a lot about memory and language in people who are not



## Sweating to the Oldies?

### A Short-Term Memory Workout

**S**tudent interpreters often begin their studies with short-term memory workouts, called “lag exercises,” which also teach them to listen and speak at the same time.

Record the following list of words into a tape recorder, or have a friend read them to you at a slow, steady pace. Leave a gap between one word and the next by reading one word every two seconds (approximately 30 words per minute).

tree	memory
car	tin
baby	ocean
tool	house
burp	computer
box	scratch
smooth	look
letter	lunch
pretty	pet
write	type
hello	table
lady	game
groove	bowl
tongue	dream
talk	breakfast

Play the tape, or have your friend start reading. Listen to the first word. When you hear the second word, cover it up by saying the first word. You'll be saying “tree” as you hear the word “car.” Be careful not to speak in the gap between words — it's important to be speaking and listening at the same time. Student interpreters often practice this exercise in the same language until they can maintain a seven-word lag.

aphasic. So, when asked whether interpreters have better memories than average, he says, “In the same way that the term intelligence covers many different types of capabilities, memory is an umbrella term that refers to many different kinds of capacity.”

“Much of an interpreter's brain power is devoted to keeping information in short-term memory,” says Paradis. “Simultaneously listening in one language and speaking in another makes the task much more challenging.” How then does Murielle's brain undertake this seemingly impossible task?

As the message flows through her headphones, Pérégovoy must decode it. Decoding does not mean knowing what each word means. Interpretation focuses on the message being conveyed, rather than the words used to convey it. Understanding the speech flowing through her headset requires the use of procedural (a type of non-declarative) memory — the kind of memory we use for automated tasks, skills, and habits. The interpreter knows the language of the speaker well enough to understand it effortlessly. Similarly, when you hear an utterance in English you probably aren't even aware of trying to understand it. The fact that you comprehend it subconsciously is the hallmark of procedural memory.

Once Pérégovoy's brain has decoded the message, it identifies blocks of information that should be stored for later use. This identification process is a conscious activity. Murielle's memory clings to facts, events, people, and objects, relying on what neuroscientists call declarative memory. Where procedural memory is subconscious, declarative memory requires effort and focused attention.

Murielle stores the decoded message in her short-term memory and holds it there until it has been correctly translated. She must retrieve the information and compare it to her translation before uttering a single word into the microphone. This step involves working memory. Think of working memory as a tub being filled with water and drained simultaneously. Water cannot flow into the tub at a faster rate than water drains from the tub or else the tub will overflow.

While all this is happening in Pérégovoy's brain, the speaker continues talking. The average person speaks at 120 words per minute, with bursts that reach 180 words per minute. Neuroscientists have identified that



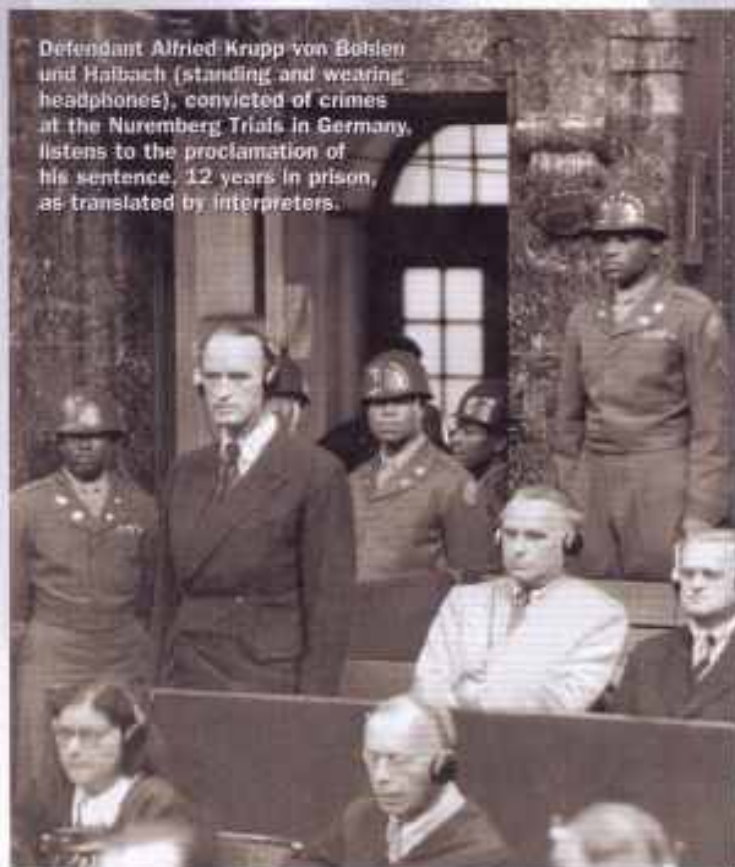
working memory has about 10 seconds (or 20 words) of storage capacity. As new information is continually added to the tub, previously stored information is constantly being compared to the memory store, putting an extra burden on working memory.

For instance, Dr. Franco Fabbro at the University of Udine in Italy found that advanced interpreting students remembered fewer details of a story when they were asked to interpret it than when they just listened to it. Other studies show that sign language interpreters have better recall than interpreters of spoken languages. Sign language interpreters undertake the same process of decoding and encoding the message in another language, but sign language does not require them to speak their translation. Instead, they deliver the message through their hands and upper bodies. Dr. Fabbro and his colleagues reasoned that the demand on interpreters to speak and listen simultaneously might be at the root of the memory interference. To test this hypothesis, he asked the students to listen to another set of stories and told them not to interpret, but to keep repeating "the . . . the . . . the . . ." while they listened. He found that these students remembered fewer details than when just listening to the stories. Working memory is taxed by the need to listen and speak at the same time, and when working memory is burdened, memorizing information becomes more difficult.

Interpreters may start out with the same three pounds of gray matter that everyone else has, but they have trained their short-term memory to help perform a particular task. Not everyone with a three-pound brain will have what it takes to become an interpreter, in much the same way that not everyone with a good pair of lungs and a love of music will grow up to become an opera singer. A lot depends on how you train, how committed you are, and your natural inclinations. "You can be good at one type of memory and poor at another," Paradis explains. "But you can improve each type of memory with practice. If you want to increase your memory, EXERCISE IT!" Do interpreters have better memories than the average person? Probably not better — just more buff. 🍷

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Defendant **Alfried Krupp von Bohlen und Halbach** (standing and wearing headphones), convicted of crimes at the Nuremberg Trials in Germany, listens to the proclamation of his sentence, 12 years in prison, as translated by interpreters.

## a star is born

**S**imultaneous interpretation was the brainchild of the Nuremberg Trials after World War II. Judges and attorneys from the Allied Powers (Great Britain, France, Russia, and the United States) tried Nazi war criminals for their involvement in war crimes. It would have taken years to hold the trials in English, French, Russian, and German without simultaneous interpreters. For the first time in history, as witnesses gave their testimony, interpreters simultaneously translated these accounts into the other three languages. Everyone present in the courtroom could then understand the proceedings as they unfolded. The world has changed quite a bit since 1945. Interpreters have high-tech equipment: wireless headsets; sound-insulated booths; and extensive glossaries to work with. But at its core, the job is still performed by skilled individuals who help people communicate as though they shared a common language.