

# ÊTES-VOUS BILINGUAL

Millions of people carry two languages in their heads and regularly shift from one to the other or even use both at once. How they accomplish this feat of linguistic agility is the subject of an ongoing study.

BY GARY PFOHL

**L**anguage is so intrinsic a part of human activity that it is virtually impossible for an individual to examine it objectively. So Francois Grosjean is slicing recorded words into tiny segments, measuring speech sounds by machine, and testing listener's perception of clues in speech so subtle that they go almost unnoticed in normal conversation.

Grosjean, professor of psychology at Northeastern University and a psycholinguist, is investigating how people who speak two languages are able to learn, retain, and use both languages at the same time without confusion.

The son of a French father and an English mother, Grosjean attended French and English schools and learned both languages by using them daily.

"I was always patted on the back for being bilingual. Many people here in the United States are bilingual according to my standards. Yet they are not considered bilingual, but semilingual or ailingual," he said.

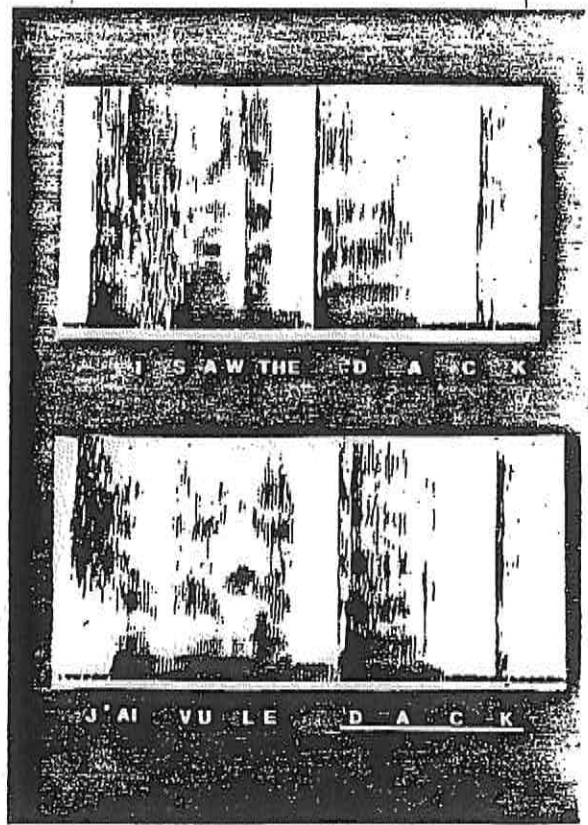
Grosjean and other experts define a bilingual speaker as a person who uses two (or more) languages to meet his everyday communicative needs in all situations: at work, at home, and when socializing. He calls this person a fully competent bilingual speaker-hearer.

"Here in the United States, I have found a binary view of bilingualism. If you are born into an English-speaking family and later learn to speak Spanish, for example, people feel that's an accomplishment. But if you are born into a Spanish-speaking family and later learned to speak English, that is often seen as a detriment. Viewed objectively, those two people have accomplished the same thing," Grosjean said.

This prejudice affects the attitudes monolingual speakers (those who speak only one language) have toward many bilinguals and the attitudes of many bilinguals toward themselves. Grosjean said. "Because of societal pressure, few bilingual speakers accept or admit to being bilingual. A

resident of Boston's North End once told me, 'My main language is English, but we speak a kind of broken Italian at home,' " he said.

To attack this attitude, Grosjean designed and taught a course in bilingualism at Northeastern in the Spring of 1979. Preparing for the course,



Voiceprints show that a bilingual speaker's pronunciation of the nonsense word "dack/daque" varies subtly according to whether he

he discovered that there was no modern textbook, so he wrote *Life with Two Languages: Introduction to Bilingualism* (Cambridge, Mass., Harvard University Press, 1982) the first comprehensive, English-language textbook on the subject.

**I**n his book, Grosjean challenges many widespread misconceptions about bilingualism.

*Misconception 1:* Bilinguals are a tiny minority and thus not worthy of serious consideration. In fact, about half the world's population is bilingual. In Europe, Africa and Southern Asia, where numerous language groups live near to each other and interact often, bilingualism or multilingualism is the norm and monolingualism the exception. Even in the U.S., where bilinguals make up only about seven percent of the population, 15 million people are bilingual.

*Misconception 2:* Bilinguals usually speak both their languages with equal fluency. "Actually, bilinguals rarely achieve equal fluency in both languages, because people develop languages to the extent they need them. Few bilinguals use both their languages for the same purposes," Grosjean said. "For example, I teach, write papers, and conduct business in English. I use French primarily in informal conversation with my family and friends. If I were suddenly forced to lecture to one of my classes in French, I probably would do poorly, because I haven't learned and practiced my French in that situation," he said.

*Misconception 3:* Bilinguals learn more slowly

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than monolinguals, possibly because their minds are cluttered with extra language information. "No unbiased, objective research I know of has shown that having two or more languages in your head has any effect on cognitive abilities," Grosjean said. "The apparent backwardness of bilinguals is an artifact of traditional testing methods."

Until recently, bilinguals were usually examined with tests designed by and for monolinguals. The results were compared with those of monolinguals. Because bilinguals rarely achieve equal fluency in each language, the results of such testing were skewed, Grosjean said.

Language scientists have examined how people learn, structure; produce, perceive and comprehend language. Until recently most of their work has looked only at monolinguals. Bilinguals have always been seen as special or apart. "They have tended to conceptualize the bilingual as the sum of two monolinguals, with two grammars, two lexicons, and two pronunciation systems; a person engaged in a constant struggle to keep his two languages separate," Grosjean said.

"Looking at my own life, I said, 'That's not true.' Depending on who my interlocutor is, the situation I am in and the topic of conversation, I will maintain my two languages separate or let them interact in the form of mixed speech."

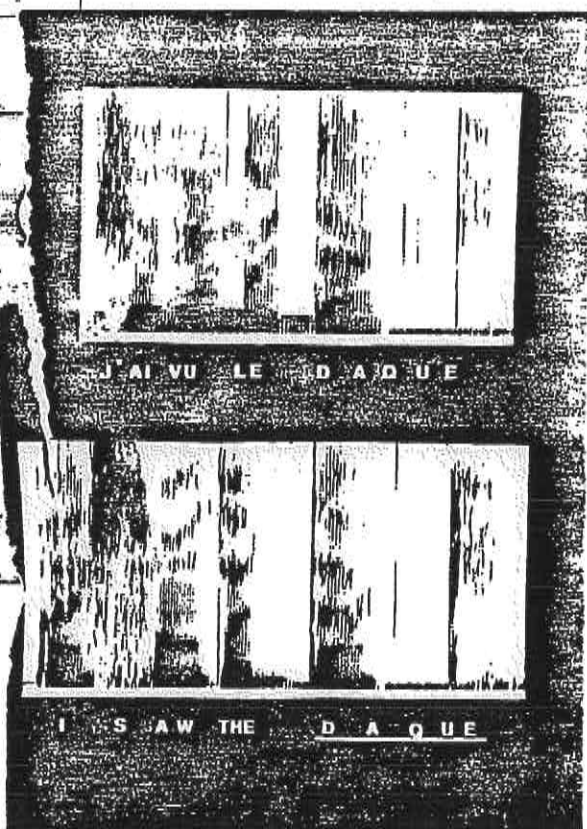
**A**ccording to Grosjean, bilinguals' speech can be categorized in two modes: the monolingual mode (speaking only English with English monolinguals or only French with French monolinguals for example) and the bilingual mode (speaking English and French with English/French bilinguals). "These modes actually represent points on a continuum: from using only one language all the way to using two languages simultaneously. For the sake of simplicity in structuring our research, we've ignored the intermediate points and defined the end points accordingly," he said.

In the monolingual mode, bilinguals adopt the language of the monolingual interlocutor and deactivate, as best they can, the other language. "Rarely can they completely deactivate the other language, however," Grosjean said. "This can be seen in the involuntary influence of one language on the other, as for example in pronunciation errors, accidental lexical borrowings, and odd grammatical constructions."

In the bilingual mode, speakers use various elements of one language while speaking the other, or base, language. "The choice of a base language depends on factors such as the participants involved, the situation, the topic, and the function of the interaction," Grosjean noted.

Grosjean and his research colleagues are halfway through a three-year project, funded by a \$210,000 grant from the National Science Foundation, to study two mechanisms of bilingual speech: code-switching and speech borrowing.

Code-switching occurs when a bilingual speaking a base language shifts completely into a second language, using the second language's grammar, syntax and pronunciation. This can involve a word, a phrase, a clause, or an entire sentence. For example (code switches are in italics):



considers the word to be English or French and whether it appears in an English sentence or a French one.



CHARLES KENNARD/STOCK BOSTON

Many people admire those who are born into an English-speaking family and later learn to speak a foreign language while they look down at those who grow up speaking a foreign language and later learn to speak English. Viewed objectively, these accomplishments are identical.

On n'est pas assez *quick*  
 (We're not quick enough)  
 and  
 Va chercher Marc *and bribe him*  
 (Go get Marc and bribe him)

avec un chocolat chaud  
*with cream on top*  
 (with a hot chocolate  
 with cream on top)

"In the real world, where the speaker may be clipping along at 175 words a minute, code switches are not as crisp and complete as they seem when you write them down on paper. The pronunciation and intonation pattern of one language may spill over and affect the other," Grosjean said.

**S**peech borrowing occurs when a word from one language is adapted to conform to the grammar and pronunciation systems of the other. For example, (borrowings are in italics):

On a *brunche* avec eux  
 (We brunched with them)  
 and

Il faut *switcher* les places  
 (We have to switch seats)

Here the examples take on French verb endings and are pronounced in French.

Grosjean noted that speech borrowings are distinct from language borrowings, when words from one language have become an integral part of another, such as "weekend" and "jazz" in French and many English-language baseball terms in Japanese. Language borrowings are outside the scope of Grosjean's study.

"Our study of code-switching and speech borrowing, has led to many questions. How does a bilingual actually pass from one language to

the other in the same sentence? How does a bilingual listener know a language shift has occurred? Are there clues embedded in speech? If so, what are they? How does the bilingual listener understand code-switches and borrowings?

Grosjean and his colleagues are undertaking a number of studies to examine bilingual speech more in detail. In the domain of speech production, they are examining the acoustic-phonetic consequences of passing from one language to the other. In an early experiment, they embedded the English nonsense word "dack" and its French counterpart "daque" in monolingual sentences:

I saw the dack *J'ai vu le daque*  
 and in bilingual, code-switched sentences:

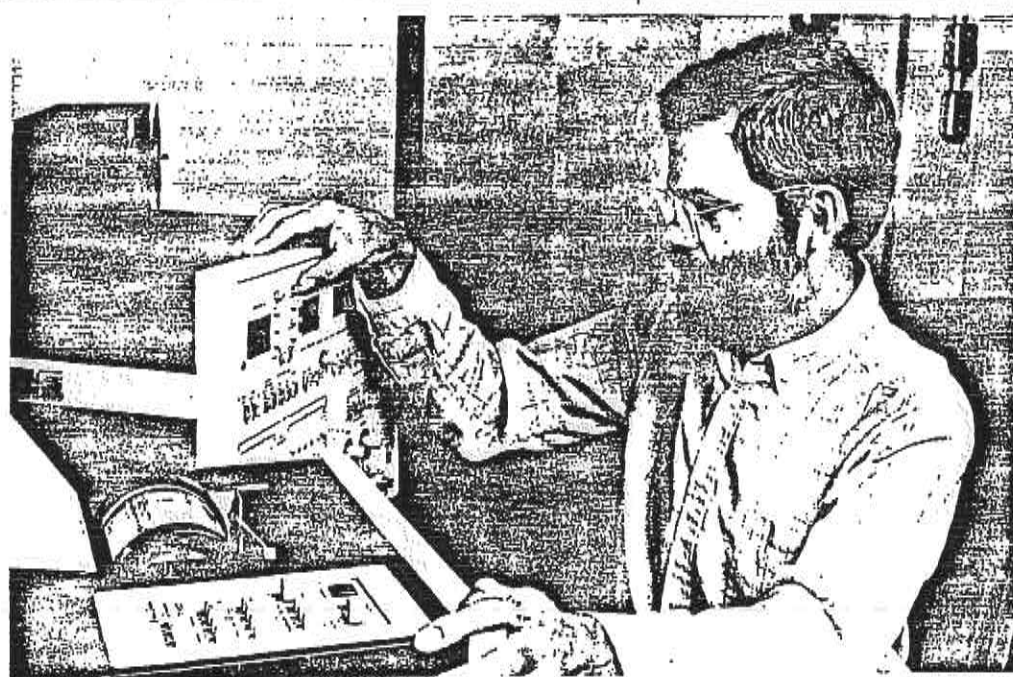
I saw the *daque* *J'ai vu le dack*

A French/English bilingual with no apparent accent in either language read each of these four sentences, and the resulting recordings were analyzed by means of a spectrograph or voiceprint machine. A spectrograph produces a display of the resonant frequencies making up speech, over time, and can reveal acoustic phenomena that are undetectable to the unaided human ear.

"Our analysis of the spectrograms showed that the base language does indeed affect the pronunciation of the code-switched word at its onset and offset, even though that word sounds perfectly normal to the listener. This base language 'tainting' of the word (or cross-language 'coarticulation') leads one to ask how and when bilingual listeners know they are dealing with a code switched word instead of a base language word."

The problem is compounded when the prosodic or intonational pattern of the code-switched word sentence is taken into account. Because French and English have such different prosodies (a rising intonation is prevalent inside sentences in French whereas a falling in-

BOB KRAMER/NORTHEASTERN



Francois Grosjean

tonation is most common in sentences in English) Grosjean is able to examine the effects of code-switching on prosody. Early pilot studies show that code-switched words and phrases in the middle of a base language sentence acquire the prosody of the base language. This finding implies that the original definition of a code-switch—a complete switch to the other language—may have to be modified somewhat. The switch may be complete at the level of the sounds themselves (after a short transition period) but not at the level of the prosody.

**G**rosjean is also interested in the psycholinguistic operations that allow a bilingual listener to perceive a code-switch correctly. He is studying the factors that cue listeners to the language in question so that they can "look up" the words in their internal dictionary. To explore this question, Grosjean uses a technique called the gating paradigm. He divides a recorded nonsense word into short segments, or gates, of increasing duration and presents these to bilingual subjects. Typically, the first gate includes the first 30 milliseconds (msec) of the word, the second gate the first 60 msec, and so on, until the entire word is heard. (The entire word "dack/daque" is about 360 msec in duration).

Recorded in both monolingual and code-switched contexts, each word is presented alone (not in the context of the sentence in which it was recorded) to the experimental subjects who are asked to identify its language after listening to each gate. Later, the nonsense words are presented in the context of both monolingual and code-switched sentences, again using the gating technique.

This experiment has shown that the base language context that precedes the code-switched word influences the subjects in their response. Thus, when the code-switch "daque" is presented by itself, subjects are quite good at

saying it is a French word; but when it is preceded by the base language context "I saw a . . ." then they all think the word is English. Of course, many other factors play a role in the identification process, such as the language specificity of the speech sounds that make up the word (some sounds belong to only one language and thus cue the listener accordingly) or the extent to which the word is code-switched appropriately (short words are said too quickly to take on the characteristics of the other language, and hence are often misidentified).

**B**ecause of Grosjean's own background, most of his work has involved French/English bilinguals. Recently however, a Swiss German graduate student, Judith Buerki, joined the project, and will add a new dimension to the research.

Grosjean believes that fundamental research of the type he is conducting will help us better understand how bilingual adults and children acquire and process their languages. "There are some four million bilingual children and adolescents in the U.S. today. We don't know nearly as much as we should about how they structure and use their languages."

A better understanding of language processing in bilinguals also will help language specialists diagnose and treat problems like stuttering, dyslexia, and delayed development in bilinguals, Grosjean said.

"From a scientific viewpoint, a complete theory of language perception, comprehension, and production must account for language processing in bilingual speakers. Such a model must describe processing in the bilingual's different speech modes and explain how this processing differs from that of the monolingual. Our studies are not only a first step in constructing that model, but also a contribution to understanding human perceptual and cognitive functioning."