TECH: LEAVING HOME

By Donal F. Holway for The Washington Post

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oxide silicon (CMOS), a process for making microchips that use very little power. Some microelectronics specialists say Japan is now even with or ahead of the United States in such technology.

In the case of the foreign optical character reading equipment, the Postal Service resorted to "Buy America" tactics to make sure that U.S. companies got a piece of the new high-technology business. It agreed to buy the equipment, but only if it were made in the United States, and suggested that the foreigners acquire American "partners."

The contract was awarded to two U.S. companies, Burroughs and Pitney Bowes, which teamed with Nippon Electric and Italy's Elsag to make the character readers. The other companies dropped out.

"We went a little beyond 'Buy America' . . . . I suppose we did what Japan sometimes has done," French said. "But we're part of this country, and its economic health and well-being are important to us."

—Dan Morgan

'PROLOG'

Travels of a Computer Code

The travels of Prolog, a computer language used in the esoteric field of artificial intelligence, suggest the speed with which ideas and new technologies are carried across international borders by the scientific community.

Prolog was born in the sunny Mediterranean city of Marseilles. It was moved to the colder climes of Scotland, carried across the Atlantic and settled for a while in California. Today, it has found a warm welcome, and probably a permanent home, in Japan.

The Prolog language was written in 1971 by Alain Colmerauer, a French computer scientist at the artificial intelligence unit of the University of Marseilles.

He is said to have been inspired about Prolog in part by Robert Kowalski, an American then working at the University of Edinburgh. Kowalski had been looking into using new kinds of logic to program computers to perform some of the complex interpretive tasks that human beings are capable of. The ideas meshed with the work of Colmerauer, who had been testing ways of having machines parse sentences, a first step in having computers translate languages.

In 1974, a Kowalski associate, David Warren, visited Colmerauer and took Prolog back to the University of Edinburgh. There he shared the concept with Harry Barrow, an American computer scientist.

In 1977, Barrow brought Prolog to the United States, introducing the language to colleagues at the artificial intelligence center at Stanford Research Institute in Menlo Park, Calif.

A year later, Prolog made a new convert in Japanese computer scientist Koichi Furukawa, who was spending a year at SRI.

"He played with Prolog at the end of his stay and liked it," recalled Daniel Sagalowicz, the center's assistant director. When Furukawa returned to Japan's Electro Technical Laboratory, he explained it to his boss, Kazuhiro Fuchi.

At ETL, Prolog created an immediate stir. While another language, LISP, has won wider acceptance in the United States, Prolog seemed to be the language that Japanese computer scientists had been seeking.

When Fuchi was made technical director of Japan's prestigious Fifth Generation Computer project, which is leading Japanese efforts to equal or surpass the United States in high-speed and high-powered computers, he took Prolog with him.

—Dan Morgan