Europe's Last Word in Machine Translation

By Cynthia Guttman

PARIS—How fast can the European of 1992 learn to speak in tongues? In an emergency, a matter of minutes.

In France, the Minitel provides round-the-clock translations of nine-line texts in a few seconds. Express, which requires a personal computer with a modem, can run 400 pages an hour. The result will be a rough translation only—but that is sufficient for a browser to grasp the essentials of a document, and it can speed the work of the professional translator.

These are just a few examples of the approaches that are being explored in Europe a few years away from the single European market. Increasingly, machine translation is perceived as part of a trend in office automation that involves other document processing stages, especially optical scanning.
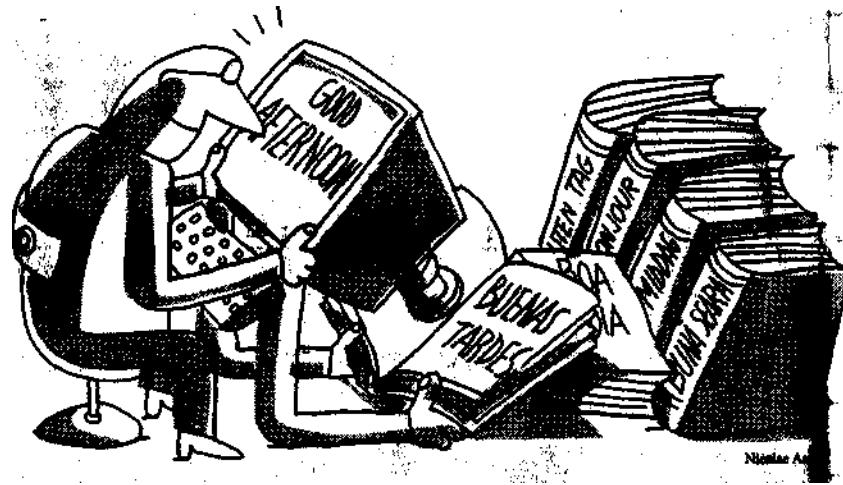
Worldwide, there are 70 machine translation systems on the market; half of these are from Japan. Of the three leading companies in Europe researching and developing translation packages — Siemens in Germany, Philips in the Netherlands, and IBM—only Siemens has brought a product to market.

Gachot SA, which developed Minitel Traduction and Express, as well as a third system, has a yearly volume of 11 million francs ($1.6 million) in translation services. It also owns the world rights to Systran, developed in the 1960s to translate Russian for the U.S.Air Force and NASA and now used by the European Commission for internal translations.

With translation needs estimated to be growing at about 15 percent per year, the future looks promising.

One potentially large market comprises the gathering of a maximum amount of information to be glanced at for its general sense; for these raw translations, speed and low cost are of primary importance. Another large market is the translation* of a company's voluminous technical documentation.

For now, use of machine translation is patchy and is still viewed with skepticism by most interpreting schools and professionals in the business. Though Xerox Corp. has successfully used machine translation to translate their manuals into five languages since 1976, only 0.5 percent of the 100 million pages that the EC translates every year is done by machine.

"There is little chance of developing high quality translation before 1992. The next big wave will probably be around 1995," said Jean-Marc Lange of IBM's language research department in France. IBM's research centers around the use of probability theory and artificial intelligence to refine linguistic models.

"I don't think there will be a high-quality system that will translate on its own by 1992," said Hans Kamp of the University of Stuttgart. "The problems that arise in developing a system that can really do it on its own are enormous. We know how to speak, but we have no understanding of how to describe everything that is going on."

Rather than any one giant leap in the field, the European approach is a pragmatic one, building largely on systems that have existed for the past 20 years.

Eurotra, the European Community's largest project, involving 19 universities, was started seven years ago and has, so far, cost 45 million ECUs, cofinanced by the EC and member states. It originally aimed at developing machine translations in all the community languages. At the time, there were seven; now there are nine, requiring a program to master 72 language pairs. The project is now being tailored to develop combinations where there is a real market.

THE field of greatest interest is computational linguistics, stressing the development of dictionaries and grammars that will eventually improve the quality and consistency of translation.

"We are just beginning to understand the complexity of the mind in using language," said Jules Marshall of Electric Word, a leading publication in the machine translation field. "At first we thought the brain worked rationally and that, like in a game of chess, calculations would lead to translating a language. In fact, the brain is far more complex. Next to it, even the most powerful supercomputer is as intelligent as a pigeon."

In the past five years, more powerful hardware has greatly cut down the response time of systems such as Systran. But most experts perceive better hardware as a tool. The heart of progress conies from developing and fine-tuning software programs.

"One of the main problems in machine translation is language analysis," said Ian Pigott, head of the commission's Systran project. "If you have a complex algorithm, 95 percent of the effort is spent on reducing natural language to computer logic. Even if you have a lot of powerful tools to help you, the most difficult part of this is reducing the problem of analysis of text to an algorithm."

Systems targeted to very specific. needs have so far shown the greatest efficiency. The Taum METEO system, developed and launched in Canada in 1977 to translate hourly weather forecasts, handles an average of 30,000 words a day. It is a classic example of the suitability of machine translation for repetitive-task situations.

One of the most recent linguistic-oriented products is Siemens' METAL system, used for technical textbook translations. Originally developed by the University of Texas at Austin, Siemens spent an additional 25 million Deutsche marks ($14.7 million) in developing hardware and software for MET-AL, and brought it onto the market last year. The package costs 250,000 marks; 18 orders have already been placed. It runs on a Unix system and employs methods of artificial intelligence to analyze language structure.

At Philips, the developers of its Rosetta program aim to create a "user-friendly" system for nonprofessionals. Still in the research stage, Rosetta takes a different approach from other systems in that it will search for similarities between grammars.

Linguistic Products, a Texas-based firm and one of the most recent arrivals on the market, offers a software system for just under $1,000. When the system was launched five years ago, there were 25,000 entries. Now there are 40,000 with 12 language pairs.

"It is possible to be 95 percent correct," said Jean Gachot, president of Gachot. "In three years, we will be there and ready for the opening of the single market."

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